COMMONWEALTH OF PENNSYLVANIA.

DEPARTMENT OF AGRICULTURE.

BULLETIN No. 70.

TABULATED ANALYSES

OF

COMMERCIAL FERTILIZERS

FROM

SAMPLES SELECTED IN ACCORDANCE WITH ACT OF JUNE 28, 1879,

BY THE

Pennsylvania Department of Agriculture,

FROM JANUARY 1st TO AUGUST 1st, 1900.

WM. STANLEY RAY,
STATE PRINTER OF PENNSYLVANIA.
1900.

DEPARTMENT OF AGRICULTURE
COMMONWEALTH OF PENNSYLVANIA

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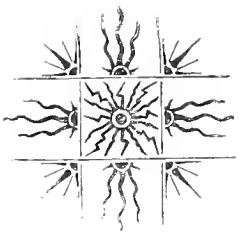


AN ACT

To regulate the manufacture and sale of commercial fertilizers.

Section 1. Be it enacted, &c., That every package of commercial fertilizer sold, offered or exposed for sale for manurial purposes within this Commonwealth, shall have plainly stamped thereon the name of the manufacturer, the place of manufacture, the net weight of its contents, and an analysis stating the percentage therein contained of nitrogen, or its equivalent in ammonia, in an available form, of potash soluble in water, of soluble and reverted phosphoric acid, and of insoluble phosphoric acid: Provided, That any commercial fertilizer sold, offered or exposed for sale which shall contain none of the above named constituents shall be exempt from the provisions of this act.

Section 2. Every manufacturer or importer of commercial fertilizers as specified in section one of this act, shall on or before the first day of January, next ensuing, or before offering them for sale in this Commonwealth, file annually with the Secretary of the State Board of Agriculture, an affidavit showing the amount of said fertilizer sold within the Commonwealth during the last preceding year, and if the said amount shall be one hundred tons or less, he shall pay to the Treasurer of the State the sum of ten dollars for each and every article of such commercial fertilizer sold within the State during the last preceding year, and if the said amount shall exceed one hundred tons and be less than five hundred tons, he or they shall pay the sum of twenty dollars as aforesaid, and if the said amount shall be five hundred tons or more, he or they shall pay the sum of thirty dollars as aforesaid. If such manufacturer or manufacturers, importer or importers, shall not have made any sales within the Commonwealth during the preceding year, he or they shall pay the sum of ten dollars as aforesaid. Every such manufacturer shall at the same time file with the Secretary of the State Board of Agriculture, a copy of the analysis required by section one of this act, and shall then be entitled to receive from the Secretary of the State Board of Agriculture, a certificate showing that the provisions of this act have been complied with: Provided, That the certificates which have been issued for the year ending July thirty-first, one thousand eight hundred and ninety-five, are hereby extended until the thirty-first day of December, one thousand eight hundred and ninety-five. (As amended by act, June 26, 1895.)

Section 3. Any person selling, offering or exposing for sale any

commercial fertilizer without the analysis required by section one of this act, or with an analysis stating that it contains a larger percentage of any or more of the above named constituents than is contained therein, or for the sale of which all the provisions of section two have not been complied with, shall be guilty of a misdemeanor, and on conviction, shall forfeit a sum not less than twenty-five and not exceeding one hundred dollars for the first offense, and not less than two hundred dollars for each subsequent offense, one-half of which shall be for the use of the informer, and the remainder for the county in which the conviction is secured: Provided, Said informer be the purchaser and goods be for his own use.

Section 4. It shall be the duty of the Board of Agriculture to analyze such specimens of commercial fertilizers as may be furnished by its agents, said samples to be accompanied with the proper proof, under oath or affirmation, that they were fairly drawn; the fee for such analysis shall be determined by the executive committee of the Board, and be based upon a fixed rate for each determination, and shall in no case exceed seventy-five per centum of the usual price paid for such services, and shall be payable from the Treasury of the Commonwealth in the manner as now provided by law.

Section 5. That the money paid into the treasury under the provisions of this act shall constitute a special fund from which the cost of selecting samples, making analyses and other expenses incident to the carrying into effect the provisions of this act shall be paid: Provided, That the total amount thus expended shall in no case exceed the amount paid into the Treasury. (As amended by act, May 21, 1895.)

Section 6. The term "commercial fertilizers," as used in this act, shall be taken to mean any and every substance imported, manufactured, prepared, or sold for fertilizing or manuring purposes, except barnyard manure, marl, lime and wood ashes, and not exempt by the provisions of section one of this act.

Section 7. This act shall go into effect on and after the first day of August, one thousand eight hundred and seventy-nine.

Approved—June 28, 1879.

PREFACE.

Harrisburg, Pa., September 1, 1900.

The following Bulletin No. 70, containing all analyses of samples of Commercial Fertilizers collected by the agents of the Department of Agriculture from January 1 to August 1, 1900, is herewith presented for the information of the public.

The usual discussion by the chemist of changes in the prices of the ingredients of fertilizers, which have occurred since August 1, 1899, is also appended, together with a schedule of prices fixed for the current year.

The foot notes refer to the page where the appropriate list giving prices may be found; and farmers are urged to use these data, and compute for themselves, the value of the composition which they expect to purchase.

The attention of farmers is also called to Bulletin No. 55, prepared by Dr. Van Slyke, of the Geneva Experiment Station, N. Y., issued by this Department, on "The Composition and Use of Fertilizers." Many thousands of dollars could be saved to agricultural people in Pennsylvania if they would study carefully the facts contained in this bulletin, and make use of the information thus gained, in their practice. The Bulletin tells of:

1. Chemistry of Plants, Plant-Foods and Soils.
2. Description of Materials Used as Fertilizers.
3. Purchase and Use of Fertilizers.
4. Arithmetic of Fertilizers.
5. Average Composition and Value of Fertilizing Materials and of Farm Crops.

Some fertilizer manufacturers have been careless in sending in the names of the brands of fertilizers which they have upon the market. In some cases they use an abbreviated form, and in others they omit important words altogether. Our agents in the field, who collect samples for analysis, are expected to report the exact wording of the brand as found printed upon the sack. When this differs from that given to this office, we suppose that it is a new brand, and is therefore unlicensed. To correct this practice the following notice was sent last spring to all manufacturers who had goods licensed in Pennsylvania:

SPECIAL NOTICE.

"Manufacturers in sending in their list of brands of fertilizers sometimes use a slightly different wording on their sacks from that furnished this Department. Agents of the Department in reporting are required to copy the precise words used on the sack. If any change has been made in branding, from the designation sent to this office, we regard the brand so changed as UNLICENSED, and a separate license must be taken out.

Manufacturers are, therefore, cautioned to use the exact language in marking the sacks, that they have furnished to the Department for record."

Notwithstanding this, some have been guilty of the same neglect, this season, and this has caused a great deal of unnecessary trouble to the Department. It is hoped that hereafter manufacturers will strictly comply with the request of the Department, and register in this office the exact language used in branding the sacks.

Commercial Fertilizers are now a recognized necessity in the agriculture of Pennsylvania, and our farmers will have to post themselves as to the action of the various substances that compose them, or pay the penalty which is always exacted from ignorance. There was a time when the farmer could not know what to purchase, or how to purchase. That time is past, and if he is deceived now it is his own fault. Full information is at his disposal if he will take it and use it.

JOHN HAMILTON,
Secretary of Agriculture.

LETTER OF TRANSMITTAL.

State College, Centre County, Pa.,

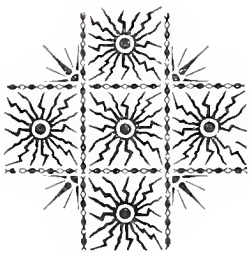
September 1, 1900.

Hon. John Hamilton, Sec'y of Agriculture, Harrisburg, Pennsylvania:

Dear Sir: I have the honor to transmit, herewith, the report of the analyses of the various brands of commercial fertilizers selected by the official agents of the Department of Agriculture from goods on sale during the spring of 1900 in Pennsylvania markets. I have prefixed a statement of the wholesale selling prices which have governed the wholesale purchase of fertilizer ingredients for the spring goods and of the principles governing the valuation of the fertilizers analyzed. I have also prepared a summary showing the comparison of the average goods analyzed this season with those of recent seasons.

Very respectfully,

WM. FREAR.



FERTILIZER VALUATIONS—1900.

The object of an official valuation of commercial fertilizers is to enable the consumer to judge approximately whether he has been asked to pay for a given brand more than the fertilizing ingredients it contains and market conditions prevailing at the time would warrant. It is clear, therefore, that no attempt is made in this valuation to indicate whether the fertilizer valued possesses a greater or less crop-producing capacity than another fertilizer; but only whether it is higher priced than another of the same general composition.

For this purpose it must be so computed as to include all the elements entering into the cost of a fertilizer as it is delivered to the consumer. These elements may be conveniently grouped as follows:

1. The wholesale cost of the ingredients.

2. The jobbers' gross profit on the sale of the ingredients; this includes office expenses, advertising, losses, etc.; for the purpose of the present computation it may be assumed that the sum of this gross profit and the wholesale cost of the ingredients, is equivalent to the retail price of the single ingredients near the wholesale markets in ton lots of original packages for cash.

3. The expense and profit of mixing: This item applies only to complete fertilizers, rock and potash, and ammoniated rock; not to dissolved or ground bone, or to dissolved rock.

4. The expense and profit of bagging.

5. Agents' commission: This item includes not only the commission proper, but every advance in price due to the sale of the goods through an agent in small quantities on time, rather than directly to the consumer in ton lots for cash.

6. Freight from the wholesale market to the point of delivery.

The valuations for 1899 were based:

1. Upon the wholesale prices from September, 1898, to March 1, 1899, of the raw materials used in fertilizer manufacture, the quotations of the New York market being adopted for all materials except acidulated phosphate rock and ground bone.

2. Upon an allowance of 20 per cent. of the wholesale prices, above mentioned, to cover jobbers' profits.

By adding the 20 per cent. allowed by jobbers' gross profit to the wholesale price of the several raw materials, the retail price in original packages at the jobbers' warehouse is obtained.

Since the amount of the several valuable fertilizing constituents in

the various raw materials is known, it is a simple matter to determine the corresponding retail value per pound of the valuable fertilizing constituents yielded by each raw material. A schedule of these pound values affords a convenient basis of computation of the value per ton of various fertilizers, whose composition is ascertained by analysis.

The values assigned, for the present, to the other elements in the cost of the fertilizer at the point of delivery are:

3. For mixing, $1.00 per ton.

4. For bagging, $1.00 per ton, in all cases except those in which the article was sold in original package; the cost of the package being, in such cases, included in the wholesale price.

5. For agents' commission, 20 per cent. of the cost of the goods f. o. b. at the jobbers' or mixers' warehouse.

6. For freight, $2.00 per ton; the cost of the freight in lots of twelve tons or over, from the seaboard to Harrisburg, averaging $1.88 per ton.

The following valuation of dissolved South Carolina rock illustrates the method:

Phosphoric acid.	Per cent.	Weight per ton.	
Soluble,	11.50	230 lbs. at 3c.	$6 90
Reverted,	2.50	50 lbs. at 2½c.	1 25
Insoluble,	1.00	20 lbs. at 1½c.	30
Retail cash value of ingredients,			$8 45
Bagging,			1 00
Cash value of goods ready for shipment,			$9 45
Agents' commission, 20 per cent.,			1 89
Freight,			2 00
Commercial value per ton,			$13 34

It is not to be expected, of course, that the valuations thus computed will precisely represent the fair price to be charged for a brand in each locality and in every transaction. Market conditions, competition, distance from factory, all introduce minor variations. Nevertheless, to make the approximation reasonably close, the average valuation of a given class of goods ought to agree closely with its ascertained average selling price. Whenever such an agreement is no longer obtained by the use of a schedule, it is evident that the schedule of retail values of the constituents, or the added allowances for mixing, etc., requires revision.

It is needful to note here another factor greatly affecting the practical accuracy of these approximations. Their computation would offer little difficulty and their usefulness be far greater, if, by the ordinary methods of analysis, the exact nature of the ingredients used to supply the several fertilizer constituents, were capable of certain determination. This is, however, possible to-day to only a limited extent. The valuations are, therefore, based on the assumption that the fertilizers are uniformly compounded from high quality ingredients, such as are commonly employed in the manufacture of fertilizers of the several classes. Consumers should carefully avoid the error of accepting such valuations as infallible; they are not designed to be used for close comparison of single brands, but only to indicate whether the price asked for a fertilizer is abnormal, assuming good quality for the ingredients used. From this it is clear that, except as high freights may require, the selling price of a brand should not far exceed the valuation; but that a fertilizer may be made of inferior materials and yet have a high valuation.

The valuations used during 1897 and 1898 were modified for use during 1899 in accordance with the changes in wholesale prices of fertilizer ingredients and to make the valuations more closely follow the selling prices.

The following comparative statement shows the valuations and selling prices of the several classes of fertilizers during 1898 and 1899.

Fertilizers.	Number of samples.	Valuation.	Selling price.	Difference of valuation from selling price.
Spring, 1898.				
Complete,	379	$26 69	$24 46	+$2 23
Alkaline,	54	15 08	15 92	−0 84
Dissolved bone,	10	25 71	23 20	+2 51
Ground bone,	55	27 82	26 25	+1 57
Dissolved rock,	82	14 59	12 80	+1 79
Fall, 1898.				
Complete,	195	24 70	22 86	+1 84
Alkaline,	50	14 79	17 02	−2 23
Dissolved bone,	9	24 70	23 17	+1 53
Ground bone,	29	28 03	27 62	+0 41
Dissolved rock,	69	13 98	13 73	+0 25
Spring, 1899.				
Complete,	250	24 53	23 60	+0 93
Alkaline,	47	15 05	16 83	−1 78
Dissolved bone,	8	21 75	21 75	0 00
Ground bone,	38	28 06	26 67	+1 39
Dissolved rock,	58	14 02	13 36	+0 66
Fall, 1899.				
Complete,	181	23 38	22 98	+0 40
Alkaline,	41	14 53	17 28	−2 75
Dissolved bone,	7	22 30	19 00	+3 30
Ground bone,	24	27 37	24 98	+2 39
Dissolved rock,	55	13 19	12 64	+0 55

These figures show that the schedule adopted for 1899 applied excellently well to the complete fertilizers and quite well to the dissolved rock, but was too high for ground bone. The mixed rock and potash goods continue to be sold at an inexplicably high rate. Comparing the spring and fall prices, a marked increase in price of the rock-and-potash goods, a slight one in those for complete fertilizers, little change in those for dissolved rock, but a very marked decrease in those for ground and dissolved bone are perceived.

The general tendencies of the wholesale market may be judged from the following comparative statement, obtained from the weekly reports of the *Oil, Paint and Drug Reporter*, of New York City, showing the average wholesale prices of fertilizer raw materials from September 1, 1898, to March 1, 1899, and from September 1, 1899, to March 1, 1900:

Wholesale Prices of Fertilizer Ingredients.

New York: *Oil, Paint and Drug Reporter.*

Substance.	Amount priced.	Average price, Sept., 1898, to March, 1899.	Average price, Sept., 1899, to March, 1900.	Prices Sept.—Feb. 1899-1900, in per cent. of prices, 1898-1899.
1. Sulphate of ammonia,	Cwt.,	$2.6457	$2.9730	112.3
2. Nitrate of soda,	Cwt.,	1.5763	1.7870	113.3
3. Dried blood, H. G.,	Unit (20 lbs.),	1.7629	2.0733	117.6
4. Dried blood, L. G.,	Unit (20 lbs.),	1.7229	1.8275	106.0
5. Concentrated tankage,	Unit (20 lbs.),	1.925	1.782	92.6
6. Rough bone,	Ton,	19.021	20.875	109.7
7. Gound bone,	Ton,	20.54	22.15	107.8
8. Bone meal,	Ton,	21.54	24.441	113.4
9. Fish guano (dry),	Ton,	19.067	20.316	106.5
10. Fish guano (acid),	Ton,	10.0751	11.136	110.5
11. Refuse bone-black,	Ton,	20.50	19.875	96.9
12. Phosphate rock (Charleston),	Ton,	3.50	3.75	107.1
13. Phosphate rock (Peace river),	Ton,	2.75	4.25	154.5
14. Phosphate rock (land, 70 per cent.),	Ton,	3.125	3.125	109.0
15. Acid phosphate,	Unit (20 lbs.),	.625	.620	99.2
16. Double manure salts,	Cwt.,	1.084	1.0387	95.8
17. Sulphate of potash,	Cwt.,	2.0162	2.0079	99.8
18. Kainit,	Ton, ..	9.021	9.3937	104.1
19. Muriate of potash,	Cwt.,	1.835	1.8106	98.6
20. Sulphuric acid, 66 degrees B.,	Cwt.,	1.101	1.475	133.9

In ammoniates, such as dried blood or concentrated tankage, the unit is of ammonia, of which 82.35 per cent. is nitrogen; in acid phosphates, the unit is of phosphoric acid (phosphorus pentoxid).

Confining out attention, at present, to the nitrogenous materials and animal sources of phosphoric acid, we find an advance approximating 10 per cent. all along the line, with an exception in the case of refuse bone-black and a doubtful one in case of concentrated tankage.

The following data are taken from the monthly reports of Thomas J. White & Co., fertilizer brokers, of Baltimore, Md., giving wholesale quotations upon "ammoniates:"

Wholesale Prices of Ammoniates:

Reports of Thomas J. White & Co., Baltimore, Md.

	Price, March, 1898 to September, 1899.	Price, March, 1899 to September, 1900.
Sulphate of ammonia, per cwt.—		
Foreign,	*$2 60	†$2 97
Domestic, gas,	*2 63	‡2 96
Ground blood, f. o. b. Chicago, per unit of ammonia,	1 66	1 54
Concentrated tankage, f. o. b., Chicago, per unit of ammonia,	1 37	1 51
Crushed tankage, f. o. b., Chicago, per ton—		
7 per cent. ammonia, 25 per cent. bone phosphate,	.....	13 00
8 per cent. ammonia, 20 per cent. bone phosphate,	13 60	.....
9 per cent. ammonia, 20 per cent. bone phosphate,	14 87	14 79
9½ per cent. ammonia, 18 per cent. bone phosphate,	§16 00	‖16 44
9½ per cent. ammonia, 15 per cent. bone phosphate,	15 50	.....
10½ per cent. ammonia, 15 per cent. bone phosphate,	.....	**17 20
10 per cent. ammonia, 10 per cent. bone phosphate,	††15 70	.....
‖ ‖Crushed tankage, c. a. f. Baltimore, per unit ammonia,	‡‡1 63	§§1 90
Hoof meal, f. o. b. Chicago, per unit ammonia,	1 42	1 58

*c. i. f. Baltimore. †c. i. f. Baltimore, quotations for December and January lacking. ‡f. o. b. Boston. §Quotations for September and February only. ‖Quotations lacking for September and October. **Quotations for September lacking. †† Quotation for February lacking. ‡‡Quotation for December, January and February. §§Lacking quotations for September and January. ‖ ‖Quotation per unit of bone phosphate stands unchanged at 10 cents.

Direct comparison is not possible here in all items; an advance of approximately 10 per cent. is notable in cases of ammonium sulphate, concentrated tankage and hoof-meal, a 7 per cent. decrease in that of blood, a 16 per cent. increase in the ammonia of crushed tankage c. a. f. Baltimore, with but little change in the '9 and 20' grade f. o. b. Chicago. The monthly reports show the usual stiffening of prices during the early Spring months.

The *Engineering and Mining Journal* in its review of the wholesale markets for fertilizing materials for 1899, gives the following quotations:

Review of 1899 Fertilizer Market: *Engineering and Mining Journal.*

Substance.	January.	June.	November.
Sulphate of ammonia, per cwt.—			
Gas liquor (24 to 25 per cent. ammonia),	.....	$2.738	*$2.925
Bone liquor,	.....	2.625	*2.738
Nitrate of soda, N. Y., spot, per cwt.,	$1.587	.....	1.725
Dried blood, per unit of ammonia—			
Western high grade,	1.862	1.850	1.725
New York,	1.687	1.875	1.825
Azotine, per unit ammonia,	1.725	1.900	1.775
Concentrated tankage, per unit ammonia, f. o. b. Chicago,	1.625	1.625	1.475
Tankage, high grade Western, f. o. b. Chicago, per ton,	14.75	17.25	14.75
Bone tankage,	19.00	20.50	20.50
Ground bone, per ton delivered,	24.25	24.25	22.50
Dried fish, per ton, f. o. b. works,	19.75	19.75	19.75
Acid fish, per ton, f. o. b. works,	11.25	10.75	10.75
Dissolved bone black (17-18 per cent. phosphoric acid),	16.25	16.25	16.25

*December instead of November quotations.

These figures clearly indicate the increased price of nitrogenous salts, but not so clearly to the casual view, the movement in the prices of animal products. The fertilizer market, like many others, is characterized by periodic intervals of special activity, so that to gain an idea of the annual fluctuations in price, an exact comparison of prices in corresponding months of the years compared, is better than a study of the variations observed within a single year. Taking the months for which the quotations are used, prices usually being quiet in November and stiffening in January, there is likewise indicated an advance in the case of New York dried blood and azotine, and a less advance in the prices of high-grade tankage and bone tankage, but a falling off in the price of bone.

Relative to the prices of raw rock phosphates: The statistics of the *Engineering and Mining Journal* exhibit a large increase in the production and export of domestic phosphate, and an increased import of the Belgian phosphate used as filler. The exports of Florida high-grade and Florida, South Carolina and Tennessee pebble rock in 1898, amounted to 580,948 long tons, invoiced at $4,672,463 or $8.04 per ton; those of 1899, amounted to 880,845 long tons, invoiced at $6,994,345 or $7.94 per ton. In January, 1899, the price of *high grade rock* (75 to 80 per cent. bone phosphate) was $8.75 f. o. b. Fernandina; in January of this year, $10 was considered a good selling price. In January, 1899, Florida land pebble (68 to 73 per cent. bone phosphate) was quoted at $5.75 delivered in New York; in April to November, at $7.08. Peace River rock sold during the year, as high as $4.50. As to *Tennessee* rock: High-grade export (75 to 80 per cent.) sold in January at $2.15 f. o. b. Mt. Pleasant, and later fluctuated up to $3.90. *High grade domestic* reached $2.50 to $2.75 in the latter part of the

year; *low grade* (65 per cent.) was quoted at $1.75 f. o. b. Mt. Pleasant in January, but later at $2.25 to $2.50.

South Carolina rock: Prices of crude rock, short ton, f. o. b. New York, were in January to March, 1899, $5.67; in April to June, $6.00; later f. o. b. Fettersea, $4.37; prices of kiln-dried rock (60 per cent.) were quoted, f. o. b. Ashley, during the year, at $3.17; and $4.37 to $4.75 as to quality, f. o. b. Fettersea.

These figures, like those of the *Oil, Paint and Drug Reporter*, show only slight fluctuations for South Carolina phosphates, but a distinct advance in the prices of higher-grade Florida and Tennessee phosphates.

Considering the cost of the acid used in acidulation of the soluble phosphates, and the raw materials of acid manufacture: Brimstone continues to be used at a decreasing rate, pyrites more and more replacing it in their manufacture. The reports of the U. S. Bureau of Statistics for the years ending June 30th, of 1898 and 1899, respectively, give average import value of crude brimstone of all grades as follows:

In 1898, $17.80 per long ton; 1899, $18.41, an advance of about 3 per cent. The report of the Bureau issued in 1899, gives lower values for the 1898 importations than those stated in the report issued in 1898. The final figures for 1899 differ little from those given in 1898, for the trade of the twelve months ending June 30 of that year. The corrected figures may be taken as showing a slightly advancing price for this commodity. The *Engineering and Mining Journal* quotes "seconds," spot New York, as follows:

January, 1899; $21.25 to $21.50 to $21.50 to $22.00; November, $22.00, with no large fluctuations during the year. The consumption of pyrites largely increased in 1899; the production in this year was over 60 per cent. greater than in 1898. These goods were largely placed on contract and market fluctuations were of little influence. The prices of the high grade America pyrites (Pilley's Island, New Foundland, 50 per cent. sulphur), f. o. b. New York, stood at about $6.50 per ton for lump, and $4.50 for fines. The same authority says concerning the acid itself, that during 1899 it was bought in a larger way and more largely consumed for fertilizers. Prices in January, 1899, were: For 66° acid, 100 lb. drums, $1.10, as against $1 in 1898; chamber acid (50°), per ton, f. o. b. factory, in bulk, at $11.50 to $12. as compared with $7.50 to $8 in 1898. The prices fluctuated little during the next ten months, but in November and December, 1899, contracts were made for 1900 delivery at the following rates: 66°, $1.20 per cwt.; chamber acid, 55°, at $16 to $17 per ton f. o. b. factory. That is, the price of chamber acid, that com-

monly employed in fertilizer manufacture, advanced about 33 per cent. This corresponds to the increase shown by the quotations of the *Oil, Paint and Drug Reporter.*

The prices of the crude rock and the sulphuric acid are, however, of less direct interest that those of the acid rock phosphate. In spite of the higher quotations for sulphuric acid, and the slightly stiffening tone of the phosphate market, quotations of the acidulated rock, show practically no change up to March 1, 1900, remaining at about 62.5 cents per unit of available phosphoric acid.

The prices of German potash salts are regulated by the German Potash Syndicate. On the basis of large lots (500 tons bulk salts or 50 tons concentrated salts) sold through brokers for cash and delivered at Boston, New York or Philadelphia, the schedules announced by the Syndicate are as follows:

	Before March 31, 1899.	After March 31, 1899.	After March 1, 1900.*
Muriate (80 to 85 per cent. 80 per cent. basis), cwt.,	$1.75	$1.78	$1.80 to $1 835
Sulphate (90 per cent. 90 per cent. basis), per cwt.,	1.955	1.985	2.025 to 2.055
Double manure salt (48 to 50 per cent., 48 per cent. basis), per cwt.,	1.005	1.025	1.04 to 1.065
Kainit, per ton,	8.70	8.90	8.80 to 9.30

*Prices vary according to point of delivery. These prices show an advance of about 3 per cent. over those of 1899 in case of concentrated salts.

Another element affecting prices has been the reorganization of the trade by the formation of several large combinations of fertilizer producers, especially the American Agricultural Chemical Company in the North, and the Virginia-Carolina Chemical Company in the South. The *Engineering and Mining Journal*, speaking of the trade conditions, says: "The year 1899 realized better profits to the manufacturer than 1898, notwithstanding the increased cost of raw materials. The trade has been kept well in hand by the two largest combinations. There was a good export business in ammoniates. The outlook for 1900 is for higher prices. The cost of manufacture will likely be $1.50 to $2.50 per ton over that of 1899 because of the upward movement of raw materials.

Composition of Raw Materials.

In order to form a correct idea of the cost per pound of the fertilizing constituents of these materials, it is needful to determine their

composition; or, in other words, the quantities of valuable materials each contains. With the exception of ground bone and dissolved rock phosphates, very few of the single ingredients of fertilizers have been analyzed in Pennsylvania during the past year; in the following table, the averages include the results of analyses made in Massachusetts, Connecticut, New Jersey and Pennsylvania, except in the case of ground bone and dissolved rock phosphates, where Pennsylvania results alone have been included.

Composition of Non-Acidulated Fertilizer Ingredients (Per Cent).

	Number of samples analyzed.	Nitrogen.	Potash.	Total phosphoric acid.
Sulphate of ammonia,	3	20.52	.....	.....
Nitrate of soda,	36	15.65	.....	.....
Dried blood,	8	13.03	.....	.....
Ground bone,	62	3.33	.....	22.89
Tankage,	31	6.05	.....	13.28
Ground fish,	33	7.87	.....	7.00
Cottonseed meal,	33	7.14	1.90	3.15
Castor pomace,	8	5.56	1.02	2.62
Sulphate of potash, high grade,	11	.....	48.96	.....
Muriate of potash,	44	.....	50.57	.....
Kainit,	10	.....	12.98	.....
Double sulphate of potash and magnesia,	8	.....	27.16	.....

Composition of Acidulated Fertilizer Ingredients (Per Cent).

	Number of samples analyzed.	Total phosphoric acid.	Soluble phosphoric acid.	Reverted phosphoric acid.	Insoluble phosphoric acid.
Dissolved bone-black,	12	17.34	15.09	1.86	.39
Dissolved bone, *	15	13.72	5.15	5.25	3.32
Dissolved rock phosphate,	113	15.98	9.64	4.72	1.61

*Also contains 1.52 per cent. of nitrogen.

Considering simply those materials sold by the hundred weight or the ton, rather than by the unit, there is found a little less nitrogen in the sulphate of ammonia, ground fish, cotton-seed meal and dissolved bone than was exhibited in last years' analyses; a little more phosphoric acid in the bone and tankage, but less in the acidu-

lated goods; the muriate of potash contained a little less actual potash, but the kainit and double manure salts a little more. Such variations are to be expected.

Cost per Pound of Fertilizer Constituents.

From the foregoing data showing the cost per ton, hundred-weight, or other unit of measure, of the several raw materials, and the quantities of valuable constituents the average materials now on the market contain, the wholesale cost per pound of the valuable constituents can be readily estimated. In the case of ammoniates, the quotations are "per unit of ammonia" in many cases. The term "unit" is equivalent to "per cent.;" in goods sold by the ton of 2,000 lbs., the unit is equal to 20 lbs.; and 20 lbs. of ammonia contains 16.47 lbs. of nitrogen.

In the case of refuse bone-black, unacidulated, the mean, 28.25 per cent. of phosphoric acid, is assumed to represent the average material on the market.

Phosphate rock is sold by the ton of 2,240 lbs.; this material is sold on the basis of the bone-phosphate of lime it contains, with drawbacks for injurious constituents.

The Charleston rock is understood to contain 60 per cent. of bone phosphate; the land rock, 70 per cent.; in the absence of a reliable average for the Peace River rock quoted, no attempt is made to include it in this estimate. Since bone phosphate of lime contains 45.8 per cent. of phosphoric acid, each per cent. of bone phosphate in a long ton of phosphate rock is equivalent to 22.4 lbs. and contains 10.26 lbs. of phosphoric acid.

In the wholesale trade, it is customary to sell dried blood, azotine, horn and hoof meals, and concentrated tankage solely on the basis of ammonia, to the entire disregard of the phosphoric acid contained.

Likewise, the insoluble phosphoric acid in dissolved rock is omitted from consideration, and contracts are based solely upon the "available" phosphoric acid; that is, the sum of the "soluble" and "reverted" or "citrate soluble" phosphoric acid; nor in rock phosphates is any claim made for the small quantities of nitrogen and potash they always contain, nor in dissolved bone for the potash present.

Under these conditions, the wholesale cost per pound in New York of the valuable constituents of such materials as furnish but a single fertilizing element, these materials being assumed to be in the state of preparation and in the package in which the manufacturer purchased them, are given in the following table; also, a figure representing a fair retail price at the factory, the materials having undergone no change in treatment or packing, and the allowance for expense and profit in retailing being 20 per cent.

Wholesale Cost per Pound of Fertilizer Constituents (New York).

I. Ingredients Supplying One Constituent.

	Constituent Valued.	Wholesale price.	Wholesale price plus 20 per cent.
		Cents.	Cents.
Sulphate of ammonia,	Nitrogen,	14.49	17.38
Nitrate of soda,	Nitrogen,	11.42	13.70
Dried blood, high grade,	Nitrogen,	10.36	12.43
Dried blood, low grade,	Nitrogen,	9.14	10.87
Concentrated tankage,	Nitrogen,	8.91	10.69
Refuse bone-black,	Phosphoric acid, total,	3.52	4.22
Charleston rock,	Phosphoric acid, total,	.61	.73
Land rock,	Phosphoric acid, total,	.44	.53
Acid phosphate,	Phosphoric acid, available,	3.10	3.72
Dissolved bone-black,	Phosphoric acid, available,	4.79	5.75
Double manure salts,	Potash,	3.82	4.58
Sulphate of potash,	Potash,	4.10	4.92
Muriate of potash,	Potash,	3.58	4.30
Kainit,	Potash,	3.61	4.33

The quotations for bone are given without reference to quality, so that it is impossible from these data to fairly apportion their several wholesale values to the nitrogen and the phosphoric acid contained in this material. As compared with tankage, the general tendency is to assign a higher commercial rating to the phosphoric acid in bone and to the nitrogen a rating not very different from that given in tankage.

The quotations of Thos. J. White & Co., show the average wholesale rates in Baltimore during September, 1899 to March, 1900, for tankage, crushed, to have been $1.90 per unit of ammonia and $0.10 per unit of bone phosphate of lime; this is equivalent to $2.31 per unit of nitrogen and $0.218 per unit of phosphoric acid.

The average composition of the ground bone and bone meal samples analyzed in Pennsylvania, last Fall, was as follows:

Phosphoric acid, 22.48 per cent.; nitrogen, 3.33 per cent.

The prepared bone contains less fat and moisture, and often less nitrogen than the ordinary "rough bone;" but these differences tend, in a manner, to neutralize each other.

Assuming for the rough bone quoted in the New York markets the same composition as the bone meal sold in Pennsylvania, and for the value of the nitrogen, $2.31 per unit, the values per pound of the several constituents would be:

Wholesale Cost, per Pound, of Fertilizer Constituents (New York).

II. Bone.

	Constituent Valued.	Wholesale price.	Wholesale price plus 20 per cent.
		Cents.	Cents.
Rough bone,	Nitrogen,	11.5	13.8
	Phosphoric acid,	2.93	3.52
Ground bone,	Nitrogen,	12.20	14.64
	Phosphoric acid,	3.11	3.73

There are no wholesale data available for the direct estimation of the wholesale pound values of acidulated bone (animal bone); the schedule must, upon this point, depend upon retail selling prices.

The prices paid by farmers' fertilizer associations may be regarded as semi-wholesale. The quantities are considerable and the terms of payment often more favorable to the manufacturer than is the case with agents' transactions.

With this understanding, they furnish an excellent check upon the values computed from the price-lists of trade journals. Through the courtesy of various officials, the writer is in possession of the prices quoted in a number of these transactions for the Spring of 1900, which give the following pound values for the several constituents bought.

Prices per Pound of Fertilizer Ingredients Quoted to Fertilizer Purchasing Associations.

Constituent Valued.	Material by which It Is Supplied.	Pennsylvania.	New Jersey.
		Cents.	Cents
Nitrogen,	Sulphate of ammonia,	.....	15.27
	Nitrate of soda,	14.80	11.86
	Dried blood,	.....	13.93
	Tankage,	.....	11.99
Phosphoric acid,	Dried fish,	.....	16.15
Potash,	Acid phosphate,	3.93	3.70
	Double manure salt,	5.00	5.00
	Sulphate of potash, high grade,	.....	4.48
	Muriate of potash,	3.96	3.79
	Kainit,	4.58	4.12

Judging from these figures, the New Jersey associations are buying at a little lower rates than those in Pennsylvania, although there may be differences in the conditions unknown to the writer, that will satisfactorily account for the difference in price. The prices quoted are in some instances higher and in some lower than the wholesale price plus 20 per cent

VALUATIONS IN NEIGHBORING STATES.

It is desirable, from all points of view, that the schedules of valuation throughout a district in which similar market conditions prevail, should differ as little as possible. It has been our practice in the past, to conform our schedule to that adopted after very careful cooperative study of market conditions for each year, by the New England states and New Jersey, except where the peculiar conditions of our market have made the valuations diverge too largely from the actual selling prices, as in the case of ground bone and dissolved rock phosphates.

The New England schedules for 1899 and 1900 are as follows:

Trade Values Adopted by the New England Stations and New Jersey.

Ingredients.	Cents per Lb.		Values of 1900 in per cent. of values of 1899.
	1899.	1900.	
Nitrogen—			
In ammonia salts,	15	17	113.3
In nitrates,	12½	13½	108.0
In dry and fine-ground fish,	14.	15½	110.7
In meat, blood and mixed fertilizers,	14	15½	110.7
In fine-ground bone and tankage,	14	15½	110.7
In coarse bone and tankage,	10	10½	105.0
Phosphoric acid—			
Water soluble,	4½	4½	100.0
Citrate soluble,	4	4	100.0
In cotton-seed meal, castor-pomace, and wood ashes,	4	4	100.0
In dry, fine-ground fish, bone and tankage,	4	4	100.0
In coarse fish, bone and tankage,	2	3	150.0
In mixed fertilizers, insoluble,	2	2	100.0
Potash—			
In forms free from muriate (chlorid),	5	5	100.0
As muriate,	4¼	4¼	100.0

The pound values assigned to the several constituents of nitrogen salts, ammoniates, acid phosphate and potash salts are clearly in accordance with the wholesale market conditions from September, 1899, to March, 1900, as shown by the quotations of the *Oil, Paint and Drug Reporter*, relative to those for the corresponding period of the preceding year. As to ground bone, assuming an average fineness of 70 per cent. fine and 30 per cent. coarse, the average value for nitrogen in ground bone according to the New England schedule is 13.4 cents per pound and for phosphoric acid, 3.7 cents per pound. In this schedule, the nitrogen value is somewhat lower than that deduced

from the average composition of Pennsylvania bone and the market quotations.

Upon a careful consideration of the changes and tendencies of the wholesale prices of fertilizer ingredients and of the discrepancies occurring since the adoption of the 1899 schedule of valuation, it has been decided that the schedule for use during 1900 should be the same as that adopted for the use of New Jersey and New England except at three points.

1. In the values assigned to water-soluble and citrate-soluble phosphoric acid derived from bone and other animal matter: for reasons mentioned last year, the Pennsylvania schedule allowed one-half cent more per pound for these ingredients than did the New England schedule. Since February, 1899, as foregoing tables show, the prices of rough bone and sulphuric acid have increased, though the quotations for phosphoric acid in crushed tankage and for refuse bone-black have not materially altered. To adopt the New England schedule for 1900 and apply it to the average complete fertilizer analysed in the last Fall season, would yield a valuation of $22.77 as compared with a selling price of $22.98. To thus lower the valuation in the face of a rising market is not believed to be wise. Our valuations of 1899 will, therefore, be retained during 1900 for the water-soluble and citrate-soluble phosphoric acid of animal origin.

2. For reasons fully discussed in 1897, it is needful to include in the Pennsylvania schedule of valuations, a distinct set of values for phosphoric acid derived from rock as contrasted with that derived from animal materials. Reference to the tables, given on an earlier page, showing the wholesale cost of a pound of phosphoric acid, will make it plain that when it comes from phosphate rock, it costs the fertilizer maker about one-half a cent; when from refuse bone-black, as quoted in New York, 3.5 cents; when from tankage, about 1.1 cents; and from bone, 2.93 cents. There is nothing to indicate that, after acidulation, the available phosphoric acid from bone is at all better for the crop than that from a good rock lime-phosphate. But so long as the consumer is persuaded that bone phosphoric acid is worth more for his crop than an equal weight of rock phosphoric acid, just so long will the manufacturer of fertilizers be able to command a higher price for fertilizers reputed to derive their phosphoric acid from bone, and just so long will he, in turn, be obliged to pay more for it on the wholesale market. Now, in some states, the volume of rock phosphoric acid used is relatively small and the need for its separate valuation not apparent; in other states it predominates to the almost entire exclusion of bone phosphoric acid, so that no distinct valuation for the latter is required; but in Pennsylvania both occupy important positions upon the market and each requires its own set of values. Despite the

slightly upward tendency of the acid phosphate market, it is thought needless to change the valuations of these constituents at this time, because the average valuations have, under the existing schedule, considerably exceeded the actual selling prices.

3. For similar reasons, nitrogen and phosphoric acid in ground bone are valued at lower rates in Pennsylvania than in New England. Some margin of excess of valuation over selling price still being maintained during the fall of 1899, no increase in the pound values for the constituents of this ingredient seems necessary. This margin is about 10 per cent. over the average selling price during the Fall of 1899, an amount fully equivalent to the higher price of bone to March 1, as exhibited by the quotations of the *Oil, Paint and Drug Reporter*.

Tankage is scheduled with bone, though costing less, because it is little sold at retail.

The schedule for 1900, as a whole, is as follows:

Schedule of Values for Fertilizer Ingredients, 1900.

	Cents per lb.
Nitrogen, in ammonia salts,	17
in nitrates,	13½
in dry and fine ground fish, meat and blood, and in mixed fertilizers,	15½
in cotton-seed meal and castor pomace,	15½
in fine bone and tankage,	10
in coarse bone and tankage,	8½
Phosphoric acid, soluble in water, in bone fertilizers,	5
soluble in water, in rock fertilizers,	3
soluble in ammonium citrate, in bone fertilizers,	4½
soluble in ammonium citrate, in rock fertilizers,	2½
insoluble in ammonium citrate, in bone fertilizers,	2
insoluble in ammonium citrate, in rock fertilizers,	1½
Phosphoric acid in fine bone, tankage and fish,	3½
Phosphoric acid in coarse bone and tankage,	2
Phosphoric acid in cotton-seed meal, castor pomace and wood ashes,	4½
Potash in high grade sulphate and in form free from muriate (or chlorid),	5
as muriate,	4¼

Potash in excess of that equivalent to the chlorin present, will be valued as sulphate, and the remainder as muriate.

Nitrogen in mixed fertilizers will be valued as derived from the best sources of organic nitrogen, unless clear evidence to the contrary is obtained.

Phosphoric acid in mixed fertilizers is valued at bone phosphoric acid prices, unless clearly found to be derived from rock phosphate.

Bone is sifted into two grades of fineness: Fine, less than $\frac{1}{50}$ inch in diameter; coarse, over $\frac{1}{50}$ inch in diameter.

The result obtained by the use of this schedule does not cover the items of mixing, bagging, freight and agents' commission. To cover these, allowances are made as follows:

For freight, an allowance of $2.00 per ton on all fertilizer.

For bagging, an allowance of $1.00 per ton on all fertilizers, except when sold in original packages.

For mixing, an allowance of $1.00 per ton on complete fertilizers, and rock-and-potash goods.

For agents' commission, an allowance of 20 per cent. is added to the cash values of the goods ready for shipment.

The mean quotations on freight from New York, Philadelphia and Baltimore to Harrisburg, in January, 1897, was $1.68 per ton, in lots of twelve tons or over; in May, 1899, quotations by the Pennsylvania Railroad were: From New York, $2.40; from Philadelphia, $1.70; and from Baltimore, $1.55; mean rate from the three points, $1.88.

FERTILIZER ANALYSES, JANUARY 1 TO AUGUST 1, 1900.

During the six months ending July 1, 1900, there were received from the several authorized sampling agents six hundred and seventy-seven (677) fertilizer samples, of which four hundred and fifteen (415) were subjected to analysis, the remainder being rejected, either because they represented brands that were analyzed last season, or because they were regarded as not certainly representative of the brand which they purported to represent. In case of brands represented by two or more samples, portions from the several samples were united and the composite sample was subjected to analysis.

The samples analyzed group themselves as follows: 276 complete fertilizers, furnishing phosphoric acid, potash and nitrogen; 2 dissolved bones, furnishing phosphoric acid and nitrogen; 48 rock-and-potash fertilizers, furnishing phosphoric acid and potash; 30 ground

bones, furnishing phosphoric acid and nitrogen; 56 acidulated rock phosphates, furnishing phosphoric acid only three miscellaneous fertilizers, which group includes potash salts, nitrate of soda and other substances not readily classified under the foregoing heads.

The determinations to which a complete fertilizer is subjected are as follows: (1) Moisture, useful for the comparison of analyses, for indication of dry condition and fitness for drilling, and also of the conditions under which the fertilizer was kept in the warehouse. (2) Phosphoric acid—total, that portion soluble in water, and that portion not soluble in warm ammonium citrate solution (a solution supposed to represent the action of plant roots upon the fertilizer), and the portion insoluble, which is assumed to have little immediate food value. By difference, it is easy to compute the so-called "reverted" acid, which is the portion insoluble in water but soluble in the citrate. The sum of the soluble and reverted is commonly called the "available" phosphoric acid. (3) Potash soluble in water,—most of that present in green sand marl and crushed minerals, and even some of that present in vegetable materials such as cotton-seed meal, not being included because insoluble in water even after long boiling. (4) Nitrogen—this element is determined by a method which simply accounts for all present, without distinguishing between the quantities present in the several forms of ammonium salts, nitrates or organic matter. (5) Chlorin; this determination is made to afford a basis for estimating the proportion of the potash that is present as chlorid or muriate, the cheaper source. The computation is made on the assumption that the chlorin present, unless in excess, has been introduced in the form of muriate of potash; but doubtless there are occasional exceptions to this rule. One part of chlorin combines with 1.326 parts of potash to form the pure muriate; knowing the chlorin, it is, therefore, easy to compute the potash equivalent thereto. (7) In the case of ground bone, the state of sub-division is determined by sifting through accurately made sieves; the cost of preparation and especially the promptness of action of bone in the soil depends very largely on the fineness of its particles, the finer being much more quickly useful to the plant.

The law having required the manufacturer to guarantee the amount of certain valuable ingredients present in any brand he may put upon the market, chemical analysis is employed to verify the guarantees stamped upon the fertilizer sacks. It has, therefore, been deemed desirable in this report to enter the guaranty filed by the manufacturer in the office of the Secretary of Agriculture, in such connection with the analytical results that the two may be compared. An unfortunate practice has grown up among manufacturers of so wording the guaranty that it seems to declare the presence in the goods of an amount of a valuable constituent ranging from a certain minimum to

a much higher maximum; thus, "Potash, 2 to 4 per cent.," is a guaranty not infrequently given. In reality, the sole guaranty is for 2 per cent. The guaranteed amounts given for each brand in the following tables, are copied from the guaranties filed by the maker of the goods with the Secretary of Agriculture, the lowest figure given for any constituent being considered to be the amount guaranteed. For compactness and because no essentially important fact is suppressed thereby, the guaranties for soluble and reverted phosphoric acid have not been given separately, but are combined into a single guaranty for available phosphoric acid; in cases where the maker's guaranty does not specifically mention available phosphoric acid, the sum of the lowest figures given by him for soluble and reverted phosphoric acid is used. The law allows the maker to express his guaranty for nitrogen either in terms of that element or in terms of the ammonia equivalent thereto; since ammonia is composed of three parts of hydrogen and fourteen parts of nitrogen, it is a very simple matter to calculate the amount of one, when the amount of the other is given; the amount of nitrogen multiplied by 1.214 will give the corresponding amount of ammonia, and the amount of ammonia multiplied by 0.824 will give the corresponding amount of nitrogen. In these tables, the expression is in terms of nitrogen. Many manufacturers after complying with the terms of the law, insert additional items in their guarantics, often with the result of misleading or confusing the buyer; the latter will do well to give heed to those items only that are given as the law requires and that are presented in these tables.

A summary of the analyses made this season may be presented as follows:

Summary of Analyses Made this Season.

	Complete fertilizers.	Dissolved bone.	Rock and potash.	Dissolved rock.	Ground bone.
Number of analyses,	276	2	48	56	30
Moisture, per cent.,	9.06	4.09	10.52	9.59	5.96
Phosphoric acid—					
Total, per cent.,	10.55	14.22	12.52	15.87	21.45
Soluble, per cent.,	4.83	1.19	5.98	9.44	.....
Reverted, per cent.,	3.52	5.11	4.88	4.83	.....
Insoluble, per cent.,	2.20.	.. 7.92	1.66	1.60	.....
Potash, per cent.,	3.74	.....	2.43	.....	.....
Nitrogen,	1.77	4.55	.....	.....	2.96
Mechanical analysis of bone—					
Fine,	.....	.....	.....	.....	73
Coarse,	.....	.....	.....	.....	27
Commercial valuation,	24.61	30.87	14.71	13.48	25.91
Average selling price,	25.38	26.00	17.35	13.57	28.42
Commercial value of samples whose selling price is ascertained,	24.59	26.26	14.71	13.49	25.81

The cases of departure of goods from their guaranteed composition observed this season, including only those cases in which it amounted to two-tenths per cent, or more, were as follows:

	Complete fertilizers.	Dissolved bone.	Rock and potash.	Dissolved rock.	Ground bone.
Deficient in four constituents,	4	.....	.....	.....	.....
Deficient in three constituents,	8	.....	1	.....	.....
Deficient in two constituents,	33	.....	3	.....	2
Deficient in one constituent,	71	1	10	3	9
Total samples in which deficiency occurred,	116	1	14	3	11

The cases of deficiency noted during the past three seasons in the goods as compared with their several guarantees, expressed in percentage of the total number of goods of each class analyzed are as follows:

	Spring, 1899.	Fall, 1899.	Spring, 1900.
Complete fertilizers,	38.4	33.7	42.0
Dissolved bone,	50.0	14.3	*50.0
Rock-and-potash,	19.1	34.2	29.2
Dissolved rock,	13.8	14.5	5.4
Ground bone,	18.4	25.3	36.7
All classes except miscellaneous,	30.9	29.2	35.2

*Only two samples analyzed.

The following comparisons of actual selling prices and the valuations based upon market conditions of the wholesale market for the six months preceding March 1 of the current year is of much interest. It indicates a considerable increase in the gross profit of the manufacturers and dealers during the past season as compared with that of 1899.

	Selling price.	Valuation.	Excess of selling price over valuation.
Complete fertilizers—			
1899, Spring,	23.60	24.70	—1.10
Fall,	22.98	23.42	—.44
1900, Spring,	25.38	24.61	.77
Dissolved bone—			
1899, Spring,	21.75	21.81	—.06
Fall,	19.00	21.12	—2.12
*1900, Spring,	26.00	30.87	—4.87
Rock-and-potash—			
1899, Spring,	16.83	15.16	1.67
Fall,	17.28	14.53	2.75
1900, Spring,	17.35	14.71	2.64
Dissolved rock—			
1899, Spring,	13.36	14.03	—.67
Fall,	12.64	13.13	—.49
1900, Spring,	13.57	13.48	.09
Ground bone—			
1899, Spring,	26.67	28.11	—1.44
Fall,	24.98	27.23	—2.25
1900, Spring,	28.42	25.91	2.51

*Only two samples analyzed.

ANALYSES OF SPRING SAMPLES.

TABULATED ANALYSES OF COMMERCIAL FERTILIZERS

FROM

SAMPLES SELECTED BY SPECIAL AGENTS

OF THE

PENNSYLVANIA DEPARTMENT OF AGRICULTURE.

Analyses by DR. WILLIAM FREAR, Chemist of the Department, and of the State College Experiment Station, State College, Pa.

SAMPLES SELECTED FROM JAN. 1, 1900, TO AUG. 1, 1900.

COMPLETE

Furnishing Phosphoric Acid,

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	ALLEGHENY CITY FERTILIZER WORKS, ALLEGHENY, PA.	
524	Pure Potato Manure,	P. C. Steiner, Bakerstown,
	ALLENTOWN MANUFACTURING CO., ALLENTOWN, PA.	
237	†Complete Bone Phosphate,	Edward J. Unangst, Nazareth,
189		Callahan & Weaver, Montoursville,
586		Harrison Saul, New Tripoli,
190	H. G. Potato Phosphate,	Callahan & Weaver, Montoursville,
186	H. G. Truck Phosphate,	Callahan & Weaver, Montoursville,
187	†Special $25 Phosphate,	Callahan & Weaver, Montoursville,
238		Edward J. Unangst, Nazareth,
	AMERICAN REDUCTION CO., PITTSBURGH, PA.	
335	†Iron City,	Horn & Hoover, Atlantic,
518		W. H. Heckert, Bakerstown,
519	†Vegetable Manure,	W. H. Heckert, Bakerstown,
338		A. L. Ingols & Son, Norrisville,
672		Bryan Bros., Scottdale,
	ARMOUR FERTILIZER WKS, CHICAGO, ILLINOIS.	
499	All Soluble,	Hansman & Rockel, Rittersville,
607	Bone, Blood & Potash,	W. H. Diehl, Northumberland,
336	†Grain grower,	J. F. Patton, Hartstown,
411		E. A. Slagle, Paxinos,
441		Jno. F. Chisholm, Sterrettania,
87		J. L. Ritter & Son, Newport,
498		Hansman & Rockel, Rittersville,
529		Geo. L. Moore, Brownsville,
537		J. Hoffman & Son, Jenners,

For explanation of these tables see p. 27. †Composite sample.

FERTILIZERS.

Potash and Nitrogen.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
4.60	3.95	3.85	3.86	**11.48**	9.00	***7.80**	8.00	8.42	.....	**8.42**	7.00	***2.00**	2.50	31.09	28.00	524
															30.00	237
8.77	3.79	4.94	4.72	***13.45**	14.00	***8.73**	9.00	4.44	.....	**4.44**	4.00	**1.83**	1.50	27.99	30.00	189
															29.00	586
7.77	2.67	5.58	2.31	***11.56**	13.00	**8.25**	8.00	.....	6.91	***6.91**	7.00	**2.31**	1.50	32.05	35.00	190
4.81	2.50	5.53	3.21	***11.24**	13.00	**8.03**	8.00	.....	2.66	**2.66**	2.00	**3.62**	3.00	31.51	35.00	186
															25.00	187
7.85	4.30	7.54	3.74	**15.58**	15.00	**11.84**	11.00	2.00	.56	**2.56**	2.00	**1.03**	.50	26.13	25.00	238
															24.00	335
9.72	4.73	3.17	1.62	***9.52**	10.00	***7.90**	9.00	2.24	.....	**2.24**	2.00	**2.86**	2.47	27.18	22.00	518
															24.00	519
8.79	3.25	2.16	1.40	**6.81**	.....	***5.41**	6.00	6.32	.....	**6.92**	6.00	**3.22**	2.45	30.25	.....	328
															17.00	672
5.69	2.10	6.21	1.82	**10.13**	9.50	**8.31**	8.00	.....	5.34	**5.34**	4.00	**3.28**	2.88	33.20	32.00	499
5.79	7.76	2.25	.43	**10.44**	10.00	**10.01**	8.00	.....	7.20	**7.20**	7.00	***3.58**	4.11	38.38	37.50	607
															22.00	336
															24.00	411
															21.00	441
8.28	5.26	3.76	2.74	**11.76**	9.50	**9.02**	8.00	2.39	.....	**2.39**	2.00	**1.77**	1.65	25.04	23.00	87
															25.00	498
															23.00	529
															22.00	537

For explaration of these tables see p. 27. †Composite sample.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
527	†H. G. Potato Fertilizer,	Geo. L. Moore, Brownsville,
606		W. H. Diehl, Northumberland,
412	†Wheat, Corn and Oats Special,	E. A. Slagle, Paxinos,
86		J. L. Ritter & Son, Newport,
528		Geo. L. Moore, Brownsville,
	R. S. AUCKER, SHAMOKIN, PA.	
301	Grade B Bone & Slaughter House Phosphate,	Geo. R. Hendricks, Selinsgrove,
298	Grade C Bone & Slaughter House Phosphate	Geo. R. Hendricks, Selinsgrove,
416	H. G. Bone & Slaughter House Phosphate,	R. S. Aucker, Shamokin,
300	Pure Bone Meal with Potash,	Geo. R. Hendricks, Selinsgrove,
299	Special Potato, Truck & Tobacco Phosphate,	Geo. R. Hendricks, Selinsgrove,
	BALTIMORE PULVERIZING CO., BALTIMORE, MD.	
665	Special Corn Mixture,	A. J. Duchanois, Frenchtown,
389	†Special Potato Mixture,—S. P. M.,	H. J. Hoffman, Jenners,
664		A. J. Duchanois, Frenchtown,
662	Spring Mixture,	A. J. Duchanois, Frenchtown,
	BAUGH & SONS CO., PHILADELPHIA, PA.	
106	Corn Fertilizer,	J. U. Ruff, New Oxford,
397	Corn Fertilizer for Sugar Corn & Garden Truck,	Peter Fink, Somerset,
396	†Double Eagle Phosphate,	Peter Fink, Somerset,
105		J. U. Ruff, New Oxford,
674		A. Gaddis & Co., Uniontown,
104	†General Crop Grower for all Crops,	J. U. Ruff, New Oxford,
395		Peter Fink, Somerset,
15		C. Frank Williamson, Media,
675		A. Gaddis & Co., Uniontown,
394	Potato Fertilizer,	Peter Fink, Somerset,
16	Special Potato Manure,	C. Frank Williamson, Media,
14	$25 Phosphate,	C. Frank Williamson, Media,

For explanation of these tables see p. 27. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
6.75	4.20	4.65	1.62	**10.47**	9.50	**8.85**	8.00	4.53	4.49	**9.02**	4.00	**1.71**	1.64	31.56	33.00	527
															32.00	606
															28.00	412
7.50	3.15	5.36	3.71	**12.22**	8.50	**8.51**	7.00	1.77	.....	**1.77**	1.00	**1.08**	.82	21.62	20.00	86
															21.00	528
6.70	3.73	3.74	2.48	***9.95**	10.39	***7.47**	8.13	3.60	.....	**3.60**	3.55	***.93**	1.20	21.34	23.00	391
6.17	3.46	4.46	2.24	**10.16**	10.14	***7.92**	8.45	3.27	.....	**3.27**	2.60	***.82**	.95	20.72	21.50	298
6.91	4.61	5.19	3.41	**13.21**	12.61	***9.80**	10.11	2.95	.....	***2.95**	3.02	***1.89**	1.95	27.25	28.00	410
6.02	3.13	6.20	8.21	**14.54**	17.00	**6.33**	.....	4.57	.....	**4.57**	4.00	**2.60**	2.47	29.53	26.00	300
4.22	3.32	3.65	2.26	**9.23**	9.00	***6.97**	7.00	6.21	.....	**6.21**	6.00	***1.54**	3.29	25.54	30.00	299
4.72	2.05	4.11	1.77	**7.93**	.....	**6.16**	.....	3.08	.....	**3.08**	.....	**.77**	.....	18.12	22.00	663
8.50	.64	4.25	1.10	**5.99**	.....	**4.89**	.....	4.91	.....	**4.91**	.....	**1.63**	.....	21.45	22.30	389
															.....	664
7.31	1.55	5.72	1.65	**8.92**	.....	**7.27**	.....	2.21	.....	**2.21**	.....	**.68**	.....	18.06	18.00	662
0.19	3.86	5.02	1.71	**10.59**	.....	**8.88**	8.00	.47	.....	**.47**	.....	***1.48**	1.65	21.33	21.50	106
10.63	5.24	3.77	1.62	**10.23**	.....	**9.01**	8.00	.91	.....	**.91**	.....	**2.03**	1.65	23.94	22.00	397
															22.00	396
11.07	5.08	3.90	2.84	**11.32**	.....	**8.98**	8.00	1.34	.....	**1.34**	1.00	**1.77**	1.65	23.70	24.00	105
															18.00	674
															18.00	104
8.55	5.78	3.12	1.36	**10.26**	.....	**8.90**	8.00	.....	2.04	**2.04**	1.60	**1.19**	.82	22.28	18.00	395
															22.00	15
															19.00	675
11.27	4.30	4.48	2.26	**11.04**	.....	**8.78**	8.00	2.32	.....	**2.32**	2.00	**1.78**	1.65	24.55	23.00	394
3.65	3.82	4.87	1.38	**10.07**	.....	**8.69**	5.00	6.80	4.03	**10.83**	10.00	**1.71**	1.65	33.00	30.00	16
11.25	5.07	3.42	2.31	**10.80**	.....	**8.49**	8.00	.....	1.89	**1.89**	1.00	***1.41**	1.65	22.78	25.00	14

*Constituent falls below guarantee.

Sample number	Manufacturer and Brand.	From Whom Sample Was Taken.
	WM. F. BAUGHMAN, RINELY, PA.	
125	Ammoniated Bone Phosphate,	Wm. F. Baughman, Woodline,
124	Harvest Queen Phosphate,	Wm. F. Baughman, Woodline,
126	Potato & Tobacco Phosphate,	Wm. F. Baughman, Woodline,
	BERG CO., PHILADELPHIA, PA.	
231	Special Potato Guano,	Jno. Goheen, Birdsboro,
	BERGER BROS., EASTON, PA.	
482	Lehigh Super Phosphate,	W. S. Weaver, Easton,
483	Peerless Phosphate,	W. S. Weaver, Easton,
239	Potato and Truck,	Frank Gerner, Nazareth,
	A. H. BLAKER & CO., FOX CHASE PA.	
65	†Special for General Use,	Wm. Eyre, Newtown,
493	†Special for General Use,	C. P. Wotring, Unionville,
66	Special for Potatoes,	Wm. Eyre, Newtown,
472	†Special for Wheat & Corn,	Geo. W. Westcott, Oxford,
492	†Special for Wheat & Corn,	C. P. Wotring, Unionville,
474	Poudrette,	Geo. W. Westcott, Oxford,
	BOWKER FERTILIZER CO., BOSTON & NEW YORK.	
375	†Ammoniated Dissolved Bone,	Alvin Sax, Effort, Pa.,
452	†Ammoniated Dissolved Bone,	L. Clark, Waterford,
153	†Farm & Garden Phosphate,	Bailey & Converse, Wellsboro,
423	†Farm & Garden Phosphate,	J. H. Case, Danville,
183	Market Garden,	J. R. Hood, Colton,
453	Potash Bone,	L. Clark, Waterford,
181	†Potash or Staple,	J. R. Hood, Colton,
351	†Potash or Staple,	Osro Wykoff, Woodcock,
182	Potato & Vegetable Phosphate,	J. R. Hood, Colton,
232	†6 per cent. Potato Fertilizer,	J. A. Heckman, Shanersville,
152	†6 per cent. Potato Fertilizer,	Bailey & Converse, Wellsboro,
671	†6 per cent. Potato Fertilizer,	Loucks, Morrow & Co., Scottdale,

For explanation of these tables see p. 27. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
12.28	1.37	5.70	1.97	*9.04	11.00	*7.07	9.00	2.58	.....	2.58	2.00	*.94	1.23	19.36	22.00	125
21.57	1.65	5.88	1.70	9.23	9.00	*7.53	8.00	2.16	.....	2.16	2.00	*.70	.82	18.37	20.00	124
15.75	3.01	4.87	2.35	*10.23	11.00	*7.88	9.00	3.02	.....	*3.02	4.00	*1.34	1.65	22.51	23.00	126
9.20	4.28	3.38	2.60	10.26	.....	*7.66	8.00	9.90	.....	9.90	8.00	*2.78	3.29	34.95	40.00	231
12.11	5.73	4.00	1.90	11.63	9.50	9.73	8.50	5.34	.....	*5.34	5.50	*1.57	1.64	27.76	28.00	482
6.82	2.82	5.89	1.41	10.12	10.00	8.71	8.00	2.37	.....	2.37	2.00	.99	.82	20.92	18.00	483
19.23	5.40	2.74	1.77	9.91	9.00	8.14	8.00	5.86	.....	*5.86	6.00	*3.51	3.69	33.68	32.00	239
8.58	6.49	3.44	2.03	11.96	9.00	9.93	8.00	1.82	.....	*1.82	2.00	1.27	1.00	23.38	25.00	65
															24.00	493
8.90	6.19	3.56	1.24	*10.99	11.00	*9.75	10.00	8.41	.....	8.41	8.00	1.05	1.00	28.76	30.00	66
7.99	5.66	2.98	1.47	10.11	8.00	8.64	7.00	1.63	.....	1.63	1.00	.93	.75	20.34	21.00	472
															20.00	492
10.63	3.63	2.98	.82	7.43	5.00	6.61	4.00	2.32	.....	2.32	1.00	*.57	.75	16.81	16.00	474
14.61	6.85	4.11	1.86	12.82	.....	10.96	8.00	2.06	.....	2.06	1.00	1.35	1.00	25.05	26.00	375
															28.00	452
11.73	7.20	3.59	2.51	13.30	.....	10.79	8.00	2.27	.....	2.27	2.00	1.55	1.50	26.19	35.00	153
															30.00	423
11.66	3.96	2.57	1.96	8.49	.....	6.53	6.00	10.19	.....	10.19	10.00	3.03	2.25	34.64	40.00	183
10.11	1.00	5.36	2.73	9.09	7.00	6.36	6.00	1.20	1.43	2.63	2.00	.91	.82	19.02	.....	453
11.87	5.97	4.09	2.17	12.23	9.00	10.06	8.00	3.79	.....	3.79	3.00	.82	.82	23.91	25.00	181
															24.00	351
14.57	7.46	3.06	1.85	12.37	10.00	10.52	9.00	2.48	.....	2.48	2.00	*1.63	1.65	26.23	32.00	182
11.51	5.06	3.96	2.27	11.29	.....	9.02	7.00	6.32	.....	6.32	6.00	.90	.75	25.62	28.00	232
															30.00	152
															32.00	671

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
424	Stockbridge Manure,	J. H. Case, Danville,
	BRADLEY FERTILIZER CO., BOSTON, MASS	
622	†Bean & Potato Phosphate,	Grier & Osterhout, Punxsutawney,
517		S. J. Saint, Sharpsburg,
669		I. H. Davison & Son, Franklin,
403	†Niagara Phosphate,	N. J. Beachey, Elk Lick,
328		A. F. Stutzman, Johnstown,
425		Robt. Stebbins, Mosiertown,
516		S. J. Saint, Sharpsburg,
515	†Sea Fowl Guano,	S. J. Saint, Sharpsburg,
434		Robt. Stebbins, Mosiertown,
568		G. B. Mills, N. Towanda,
	S. B. BRODBECK, BRODBECK'S, PA.	
116	Reliable,	Sheffer & Frey, Hanover,
	BRUMFIELD & FOSTER, COLORA, MD.	
380	Hard Times,	R. F. Schwarz, Sprague ville,
382	Potato Phosphate,	R. F. Schwarz, Sprague ville,
381	Special Tomato & Potato,	R. F. Schwarz, Sprague ville,
	CAMBRIA FERTILIZER CO., JOHNSTOWN, PA.	
312	B. & B. Phosphate,	H. A. Shoemaker, Ebensburg,
313	†Standard Phosphate,	H. A. Shoemaker, Ebensburg,
508		M. A. Zimmerman, Critchfield,
	CHEM. CO. OF CANTON, BALTIMORE, MD.	
481	Amomniated Bone Phosphate,	Morris Nauman, Stroudsburg,
42	Baker's Fish Guano,	Jacob S. Beshore, Newberrytown,
523	†Baker's Standard H. G. Guano,	W. H. Heckert, Bakerstown,
601		W. A. Leiser, Watsontown,
278	†C. C. C. Special Compound,	S. F. Miller, Mechanicsburg,
636		H. M. Gray, Tyrone,
534	Eagle Phosphate,	J. Specht, Kantner,
260	Game Guano,	I. A. Romberger, Elizabethville,

For explanation of these tables see p. 27. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
9.96	5.29	2.45	2.18	**9.92**	7.00	**7.74**	6.00	9.37	.....	*9.37	10.00	**2.90**	3.29	34.77	40.00	424
7.32	5.46	3.88	1.01	**10.35**	10.00	**9.34**	8.00	3.33	.....	*3.88	4.00	**.90**	.82	22.96	39.00	622
															24.00	517
															29.00	669
8.15	2.53	5.99	1.82	**10.34**	8.00	**8.52**	7.00	1.19	.....	**1.19**	1.00	**.90**	.82	13.38	23.00	403
															22.00	328
															21.00	435
															20.00	516
															25.00	515
9.25	4.52	3.97	2.47	**10.96**	10.00	**8.49**	8.00	1.89	.....	**1.89**	1.50	**2.10**	2.05	25.06	26.00	434
															32.00	568
9.26	5.05	3.73	1.35	**10.13**	.....	**8.78**	.....	2.41	.....	**2.41**	.....	**.84**	.....	20.78	19.00	126
9.80	5.02	3.57	2.25	**10.84**	.....	**8.59**	.....	2.13	.....	**2.13**	.....	**1.05**	.....	21.49	22.00	380
7.95	3.76	3.87	3.70	**11.33**	.....	**7.63**	.....	5.03	.....	**5.03**	.....	**1.23**	.....	24.69	25.00	332
11.60	6.02	2.75	2.43	**11.20**	.....	**8.77**	.....	10.46	.....	**10.46**	.....	**1.59**	.....	32.36	32.00	381
4.84	1.89	2.81	1.50	*6.20	8.00	*4.70	6.50	2.72	.....	**2.72**	2.00	**1.01**	1.00	16.90	20.00	312
7.47	5.34	2.76	1.59	**9.69**	7.00	**8.10**	6.00	4.02	.....	**4.02**	3.00	*1.70	2.50	24.97	25.00	313
															25.00	508
7.97	5.44	2.97	2.25	**10.66**	10.00	**8.41**	8.00	2.22	.....	**2.22**	2.00	**1.30**	1.23	22.29	25.00	481
12.67	5.82	2.72	1.62	**10.16**	10.00	**8.54**	8.00	2.49	.....	**2.49**	2.00	*1.54	1.65	23.43	23.50	42
6.72	3.40	4.21	2.18	*9.79	10.00	*7.61	8.00	3.91	.....	**3.91**	3.00	*1.88	2.06	25.12	24.00	523
															24.00	661
7.92	5.06	2.80	1.34	*9.20	10.00	*7.86	8.00	5.68	.....	*5.68	6.00	*1.93	2.06	27.21	32.00	278
															35.00	636
10.06	1.79	5.48	2.62	**9.89**	8.00	**7.27**	7.00	1.64	.....	**1.64**	1.00	**.86**	.82	18.60	20.00	534
8.52	5.61	2.42	.57	*8.60	10.00	**8.03**	8.00	2.73	.....	**2.73**	2.00	*1.58	1.65	22.80	23.00	260

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
77	†Potato Manure,	J. W. Hostetler, Walnut,
132		R. B. Hyson, Bridgeton,
236		Thos. Smoyer, Bath,
303		N. B. Winey, Middleburg,
41		Jacob S. Beshore, Newberrytown,
480		Morris Nauman, Stroudsburg,
522		W. H. Heckert, Bakerstown,
637		H. M. Gray, Tyrone,
640		H. L. Stultz, Duncansville,
277	Resurgam Guano,	S. F. Miller, Mechanicsburg,
	CHICOPEE GUANO CO., NEW YORK.	
235	Farmer's Reliable Corn & Wheat Mixture,	Thomas Worman, Bath,
53	Farmer's Reliable Potato, Corn & Wheat Mixture,	E. B. Hickman, & Sons, West Chester,
234	Standard Guano for Vegetables,	Thomas Worman, Bath,
	CLARK'S COVE FERTILIZER CO., NEW YORK.	
506	King Philip Alkaline Guano,	C. I. & J. H. Way, Coleman's,
270	†King Philip,	A. Cameron Bobb, Paxinos,
573		Fowler Ellis, Franklindale,
507	†Potato & Hop Grower,	C. I. & J. H. Way, Coleman's,
269		A. Cameron Bobb, Paxinos,
572		Fowler Ellis, Franklindale,
	E. FRANK COE CO., NEW YORK.	
48	Empire State Brand,	D. E. Brown, E. Berlin,
100	Famous Red Brand Excelsior Guano,	D. E. Brown, E. Berlin,
98	Western New Yorker,	D. E. Brown, E. Berlin,
243	XXV Ammoniated Bone Super Phosphate,	Wm. H. Mengel, Saylorsburg,
	HENRY COPE & CO., LINCOLN UNIVERSITY, PA.	
222	Pennsylvania Wheat Grower and Complete Manure,	Wilson & Mendenhall, Toughkenamon,
477	Special Chester Co. Potato & Corn Phosphate,	Henry Cope & Co., Oxford,

For explanation of these tables see p. 27. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
															22.00	77
															22.00	132
															25.00	236
															20.00	303
7.88	2.40	3.72	2.46	**8.58**	7.00	**6.12**	6.00	4.97	.....	***4.97**	5.00	**1.33**	1.23	22.59	23.00	41
															28.00	480
															24.00	522
															27.00	637
															27.00	640
8.84	4.82	3.52	1.14	***9.51**	10.00	**8.37**	8.00	3.89	.....	***3.89**	4.00	***.72**	.82	21.14	24.00	277
9.25	3.88	3.58	1.82	**9.28**	8.00	**7.46**	7.00	1.24	.....	**1.24**	1.00	**.90**	.83	18.45	22.00	235
11.05	4.67	3.30	1.98	**9.95**	8.00	**7.97**	7.00	1.53	.....	**1.53**	1.00	**.95**	.83	19.63	21.00	53
12.02	5.14	3.79	2.03	**10.96**	9.00	**8.93**	8.00	3.57	.....	***3.57**	4.00	**.90**	.83	22.62	25.00	234
11.15	5.36	2.94	2.46	**10.76**	9.00	**8.30**	8.00	2.13	.....	**2.13**	2.00	**1.14**	1.02	21.67	24.00	506
11.82	6.79	3.25	1.05	**11.09**	9.00	**10.04**	8.00	2.15	.....	**2.16**	2.00	**1.16**	1.02	23.06	23.00	270
															24.00	573
															28.00	507
7.59	4.08	3.63	2.31	**10.02**	8.00	**7.71**	6.00	4.59	.....	***4.59**	5.00	**1.24**	1.23	23.66	22.00	269
															26.00	572
9.50	7.38	2.01	1.52	***10.91**	16.00	**9.39**	8.00	.67	3.26	***3.93**	4.00	***1.55**	1.58	26.55	26.00	48
8.10	8.34	1.46	.81	**10.61**	.....	**9.80**	.....	.....	5.95	**5.95**	.....	**3.11**	.....	35.05	38.00	100
7.34	5.82	2.80	2.95	***11.57**	16.00	**8.62**	8.00	.....	4.30	**4.30**	4.00	**.97**	.80	24.50	24.00	98
13.50	6.28	3.21	2.66	**12.15**	.....	**9.49**	.....	1.41	.....	**1.44**	.....	**.81**	.....	21.14	20.00	243
10.32	2.56	5.74	2.39	**10.69**	8.00	**8.30**	7.00	4.15	.....	**4.15**	4.00	**1.36**	1.23	24.09	25.00	222
5.26	2.26	4.71	2.02	***8.99**	9.00	***6.97**	8.00	4.24	.....	**4.24**	4.00	**1.48**	1.23	23.07	24.00	477

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	CROCKER FERTZ. & CHEM. CO., BUFFALO, N. Y.	
512	Ammoniated Wheat & Corn Fertilizer,	J. H. Thompson, Harmerville,
326	Complete Manure,	J. M. Harshberger & Sons, Johnstown,
513	New Rival Ammoniated Super Phosphate,	J. H. Thompson, Harmerville,
665	Special Potato Manure,	Chas. Stoltz, Meadville,
438	Universal Grain Grower,	C. R. Forbes, Albion,
	E. DARON, DOVER, PA.	
288	Harvest King Bone Phosphate,	E. Daron, Dover,
	DETRICK FERTILIZER & CHEM. CO., BALTIMORE, MD.	
521	Ammoniated Bone Phosphate,	W. H. Heckert, Bakerstown,
544	Paragon Ammoniated Bone Phosphate,	Levi Berkey, Somerset,
520	†Standard Potash Fertilizer,	W. H. Heckert, Bakerstown,
530		T. L. Butter, Confluence,
208	Corn & Oats Fertilizer,	Passmore & Gillispie, Nottingham,
	JAS. G. DOWNWARD & CO., COATESVILLE, PA.	
49	†Ammoniated Bone Phosphate,	Jas. G. Downward & Co., Newtown Square,
54		Thomas Agnew, Kelton,
148	Royal Bone Phosphate,	J. T. L. Hare, Flemington,
50	†Special Potato Fertilizer,	Jas. G. Downward & Co., Newtown Square,
149		J. T. L. Hare, Flemington,
	EUREKA FERTILIZER CO., PERRYVILLE, MD.	
136	†Corn & Potato Special,	C. T. Grove, Felton,
212		Kirk & Yerkes, Nottingham,
137	†Fish, Rock and Potash,	C. T. Grove, Felton,
214		Kirk & Yerkes, Nottingham,
7	Potato & Vegetable Fertilizer,	Londongrove Grange, Chatham,
	WASHINGTON EWING, LANDENBURG, PA.	
211	Waste Land Potato Phosphate,	Passmore & Gillispie, Nottingham,
	R. C. FAIRLAMB & SON, BRANDYWINE SUMMIT, PA.	
11	Corn Special Phosphate,	R. C. Fairlamb & Son, Brandywine Summit,

For explanation of these tables see p. 27. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
7.40	7.80	1.63	1.75	**11.18**	9.00	**9.43**	8.00	1.98	.....	**1.98**	1.50	***1.92**	2.05	25.50	24.00	512
8.90	5.14	3.31	1.15	**9.60**	9.00	**8.45**	8.00	3.80	.....	***3.80**	4.00	***.80**	.82	21.55	27.00	326
8.75	8.64	2.57	1.82	**13.03**	10.00	**11.21**	9.00	2.08	.....	**2.08**	2.00	**1.30**	1.23	25.44	24.00	513
10.07	6.95	2.35	.68	**9.98**	9.00	**9.30**	8.00	6.67	.75	**7.42**	7.00	***3.10**	3.28	34.83	40.00	6:5
7.52	4.45	3.39	.88	***8.72**	9.00	***7.84**	8.00	2.11	.....	**2.11**	2.00	**1.10**	.82	20.06	25.00	438
6.70	5.20	3.36	1.83	**10.39**	10.00	***8.56**	9.00	5.34	.....	**5.34**	5.00	***1.13**	1.65	24.90	22.00	288
7.10	5.84	3.61	2.18	**11.63**	9.00	**9.45**	7.00	2.25	.....	**2.25**	1.00	**1.19**	.82	23.12	22.00	521
7.04	.70	5.13	3.60	**9.43**	9.00	***5.83**	7.00	1.42	.....	**1.42**	1.00	**.87**	.82	17.13	17.50	544
6.52	1.28	5.31	2.53	**9.12**	7.00	**6.59**	6.00	5.38	.....	**5.38**	5.00	***1.19**	1.23	22.86	21.00	520
															20.50	530
7.42	6.52	3.10	1.06	**10.68**	10.00	**9.62**	9.00	.67	2.45	**3.12**	3.00	**.96**	.82	23.25	23.00	208
5.86	2.78	4.26	3.17	**10.31**	.....	**7.14**	.....	3.05	.....	**3.05**	.....	**.92**	.....	20.43	24.00	49
															25.00	54
7.46	3.85	5.26	3.04	**12.15**	.....	**9.11**	.....	2.96	.....	**2.96**	.....	**.98**	.....	22.89	27.00	148
5.38	2.50	4.37	3.35	**10.22**	.....	**6.87**	.....	3.85	.....	**3.85**	.....	**1.31**	.....	22.47	27.00	50
															33.00	149
8.86	4.44	3.56	1.71	***9.71**	11.00	***8.00**	9.00	1.93	.....	***1.93**	3.00	***.53**	.82	18.44	20.00	136
															21.00	212
9.68	3.80	4.54	2.38	**10.72**	9.00	**8.34**	8.00	1.78	.....	**1.78**	1.00	***.39**	.41	18.33	16.00	137
															17.00	214
9.30	5.47	3.52	3.26	**12.25**	10.00	**8.99**	8.00	3.04	.....	***3.04**	4.00	***1.43**	1.65	25.40	21.00	1
10.03	5.19	3.73	3.62	**12.54**	5.00	**8.92**	3.00	3.26	.....	**3.26**	2.00	**1.44**	1.23	25.14	24.00	211
7.38	6.90	2.41	.89	**10.20**	.....	**9.31**	8.00	1.73	2.42	**4.15**	3.00	***1.52**	1.65	25.95	24.00	11

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
10	Potato Special Phosphate,	R. C. Fairlamb & Son, Brandywine Summit,
	FARMER'S FERTILIZER CO., WESTMINSTER, MD.	
287	No. 1 Bone Phosphate,	Cook, Bentz & Co., Dillsburg,
25	XX Bone Phosphate,	M. H. Bentz, Mountain Top,
	W. S. FARMER & CO., BALTIMORE, MD.	
45	Harvest Queen,	Jacob Conley, Etters,
46	Standard Phosphate,	Jacob Conley, Etters,
	GREAT EASTERN FERTILIZER CO., RUTLAND, VT.	
420	†English Wheat Grower,	Robt. H. Morris, Danville,
63		H. C. Moyer, Perkasie,
566		M. A. Cramer, Monroeton,
421	†Vegetable, Vine & Tobacco Fertilizer,	Robt. H. Morris, Danville,
251		John Engle, Hummelstown,
460		Sam'l Hibbs, Langhorne,
565		M. A. Cramer, Monroeton,
	GRIFFITH & BOYD, BALTIMORE, MD.	
195	Cereal Bone Plant Food,	John Artley, Muncy,
121	Farmer's Improved Phosphate,	A. M. Bechtel, Gitt's Run,
80	†Farmer's Potato Manure,	Wm. Kipp, Millerstown,
27		A. K. Straley, Hall,
197		Jno. Artley, Muncy,
81	†Peerless Fertilizer,	Wm. Kipp, Millerstown,
120		A. M. Bechtel, Gitt's Run,
30		A. K. Straley, Hall,
191		Callahan & Weaver, Montoursville,
409		E. A. Slagle, Paxinos,
28	†Valley Fertilizer,	A. K. Straley, Hall,
196		Jno. Artley, Muncy,

For explanation of these tables see p. 27. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
9.75	8.60	2.03	.78	**11.41**	.....	**10.63**	8.00	.93	6.73	***7.66**	10.00	***1.43**	1.65	31.72	27.00	10
9.30	7.50	2.33	1.49	**11.32**	11.00	**9.83**	9.00	2.46	.....	**2.46**	2.60	***1.59**	2.06	25.05	22.50	287
10.65	6.94	2.54	1.52	**11.00**	.....	**9.48**	9.00	2.88	.....	**2.88**	2.50	**.85**	.82	22.35	13.00	25
11.31	7.41	3.14	1.79	**12.34**	11.50	**10.55**	10.00	2.67	.....	**2.67**	2.50	***1.17**	1.23	24.54	21.00	45
11.02	7.78	2.87	1.40	**12.05**	11.50	**10.65**	10.00	2.51	.....	**2.51**	2.50	**2.45**	2.17	29.19	24.00	46
															23.00	420
8.73	5.36	2.99	2.38	**10.73**	9.00	**8.35**	8.00	2.21	.....	**2.21**	2.50	**.86**	.82	20.62	.....	63
															19.00	566
															30.00	421
															25.00	251
10.25	5.69	3.09	2.32	**11.10**	9.00	**8.78**	8.00	3.80	.....	**3.80**	3.25	***2.00**	2.05	27.01	28.00	460
															23.00	565
9.75	5.84	2.41	.88	***9.13**	10.00	**8.25**	8.00	2.56	.....	**2.56**	2.00	**.97**	.85	20.59	24.00	195
13.11	4.41	3.62	1.79	**9.82**	9.00	**8.03**	7.00	2.44	.....	**2.44**	1.50	***.68**	.85	19.53	18.00	121
															25.00	80
9.15	3.90	3.76	3.35	**11.01**	9.00	***7.66**	8.00	9.44	.....	**9.44**	9.00	**.95**	.85	27.92	27.00	27
															32.00	197
															15.00	81
															15.00	120
12.00	4.29	4.43	1.90	**10.62**	9.00	**8.72**	8.00	2.34	.....	**2.34**	2.00	**.27**	.....	13.22	16.00	30
															17.00	191
															16.00	409
															18.00	28
9.21	4.30	3.71	2.07	**10.08**	8.00	**8.01**	7.00	2.38	.....	**2.38**	1.00	**.47**	.41	18.69	19.00	196

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	HANOVER BONE FERTILIZER CO., LTD., HANOVER, PA.	
101	Farmer's Crop Winner,	Sam'l H. Duncan, Abbottstown,
102	Hanover Blood and Bone Compound,	Sam'l H. Duncan, Abbottstown,
139	Hanover Excelsior Combine,	Lebernight & Ferree, Red Lion,
	S. M. HESS & BRO., PHILADELPHIA, PA.	
140	Special Corn Manure,	Dan'l Spangler, Red Lion,
	F. H. HEWETT & SON, SCRANTON, PA.	
551	Odorless Lawn Dressing,	Foote & Shear Co., Scranton,
	HUBBARD & CO., BALTIMORE, MD.	
407	Farmer's Super Phosphate,	A. Cameron Bobb, Paxinos,
	M. P. HUBBARD & CO., BALTIMORE, MD.	
143	Farmer's Old Economy,	Jonathan Geesey, Dallastown,
	INTERNATIONAL SEED CO., ROCHESTER, N. Y.	
458	The International Potato & Truck Manure,	George Smith, Bristol,
	JARECKI CHEMICAL CO., SANDUSKY, OHIO.	
169	†Fish & Potash Potato & Tobacco Food,	Eugene Burnett, Utica,
446		Chas. M. Hershey, Kearsarge,
539	†Lake Erie Fish Guano,	A. B. Shaffer, Jenners,
656		C. Mitchell & Son, Mill Village,
448	†O. K. Fertilizer,	P. F. Cutter, West Green,
657		C. Mitchell & Son, Mill Village,
	KEYSTONE CHEMICAL FERTILIZER CO., PHILADELPHIA, PA.	
72	Keystone Cereal Bone Phosphate,	Frank D. Duffield, Langhorne,
	LACKAWANNA FERTILIZER & CHEM. CO., MOOSIC, PA.	
454	Admiral Dewey,	Z. A. Brace, Waterford,
649	Big Yield,	W. A. Stafford, Franklin Corners,

For explanation of these tables see p. 27. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
8.05	5.96	2.68	1.28	**9.92**	8.00	**8.64**	7.00	2.06	.....	**2.06**	1.50	**.67**	.41	19.57	18.00	101
8.57	6.10	2.78	1.24	**10.12**	9.00	**8.88**	8.00	2.11	.....	**2.11**	2.00	***.66**	.82	19.87	22.00	102
7.87	6.71	2.71	1.89	**11.31**	10.00	**9.42**	9.00	3.02	.....	**3.02**	3.00	**2.00**	1.65	26.77	25.00	139
9.72	5.83	3.54	2.03	**11.40**	9.00	**9.37**	8.00	2.21	.....	**2.21**	2.00	***.81**	.82	21.44	24.00	140
6.45	3.18	4.16	4.68	**12.02**	.....	**7.34**	.....	5.55	.....	**5.55**	.....	**2.11**	.....	28.44	35.00	551
8.20	6.77	2.83	1.38	**10.98**	.....	**9.60**	8.00	2.45	.....	**2.45**	1.75	***1.51**	1.65	24.33	24.00	407
8.94	4.80	4.53	.66	**9.99**	.....	**9.33**	.....	1.33	.....	**1.33**	.....	**.51**	.....	18.63	18.00	143
11.90	5.26	3.64	1.43	**10.33**	9.00	**8.90**	8.00	6.62	.....	***6.62**	7.00	**1.32**	1.25	26.91	27.00	458
10.15	5.52	4.79	1.56	**11.87**	9.00	**10.31**	8.00	.93	3.49	**4.42**	4.00	**.94**	.82	25.59	23.00	169
															25.00	446
13.20	7.58	3.53	2.00	**13.11**	11.00	**11.11**	10.00	1.48	.....	**1.48**	1.00	***1.39**	1.65	25.00	24.00	539
															26.00	656
7.00	2.87	4.07	1.57	**8.51**	7.00	**6.94**	6.00	.87	.....	**.87**	.50	**.50**	.41	15.73	.....	448
															16.00	657
8.71	6.81	1.23	2.00	**10.04**	.....	**8.04**	8.00	4.80	.58	**5.38**	5.00	**1.73**	1.65	27.01	31.00	72
6.17	2.97	3.90	1.37	**8.24**	7.00	**6.87**	6.00	.40	.74	**1.14**	1.00	**.98**	.85	17.89	20.00	454
6.06	4.50	2.63	1.70	**8.83**	8.00	**7.13**	6.00	.93	2.58	***3.51**	5.00	**2.27**	2.00	25.90	.....	649

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
431	†Bone Super Phosphate,	M. Schlosser, Saegerstown,
591		Jno. A. Kuntz, Mosierville,
359	Special Manure,	Luther Schloch, Stone Church,
	LAZARETTO GUANO CO., BALTIMORE, MD.	
111	†Ammoniated Bone Phosphate,	Z. H. Cashman, New Oxford,
133		Grove & Uffelman, Brogueville,
135	Retriever Animal Bone Fertilizer,	Grove & Uffelman, Brogueville,
	LISTER'S AGR'L CHEM. WORKS, NEWARK, N. J.	
459	†Ammoniated Dissolved Bone Phosphate,	Frank D. Duffield, Langhorne,
433		J. A. Froutz, Saegertown,
462		Harry Y. Pickering, Yardley,
654	Celebrated Corn Manure,	E. G. Culbertson, Edinboro,
655	Corn & Potato Fertilizer,	E. G. Culbertson, Edinboro,
107	†Harvest Queen Phosphate,	John H. Hersh, New Oxford,
309		S. L. Stryker, Petersburg,
44		E. K. Frazer, Goldsboro,
463		Harry Y. Pickering, Yardley,
497		DeLong & Gackenbach, Schnecksville,
584		Kachl & Griffith, Reading,
488	†No. 2 Corn,	David Sterner, Allentown, Pa.,
582		Kachel & Griffith, Reading,
653	Potato Manure,	E. G. Culbertson, Edinboro,
203	†Potato No. 2 Fertilizer,	Frank D. Duffield, Langhorne,
487		David Sterner, Allentown,
108	†Special Crop Producer,	John Hersh, New Oxford,
292		E. S. Brooks, York,
96		Joseph Burkholder, Hummelstown,
310		S. L. Stryker, Petersburg,
652		E. G. Culbertson, Edinboro,
489	Special Fertilizer for Corn,	David Sterner, Allentown,

For explanation of these tables see p. 27. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
7.25	6.83	3.88	1.26	*11.97	12.00	10.71	10.00	1.60	.40	2.00	2.00	*1.49	1.65	25.08	26.00	431
															25.00	591
6.71	6.01	2.84	1.54	*10.39	12.00	*8.85	10.00	2.40	3.81	*6.21	6.50	*2.24	2.50	30.81	35.00	359
8.92	4.35	4.84	1.53	10.72	9.00	9.19	8.00	2.25	.....	2.25	2.00	*.78	.82	20.85	19.00	111
															18.00	133
8.70	6.11	3.81	4.89	14.81	13.50	9.92	9.00	4.25	.....	4.25	4.00	2.04	1.85	30.14	25.00	135
															23.00	459
7.02	6.53	3.25	2.50	12.28	11.00	9.78	9.00	2.05	.....	2.05	1.50	*1.78	1.81	25.76	.....	433
															26.00	462
12.75	6.24	1.94	2.22	10.40	.....	8.18	.....	7.35	.....	7.35	.....	3.41	.....	35.22	34.00	654
11.00	4.63	4.24	3.62	12.49	9.00	8.87	8.00	3.19	.....	3.19	3.00	*1.52	1.65	25.15	25.00	655
															25.00	107
															24.00	309
12.02	7.07	3.01	2.86	12.94	11.50	10.08	9.50	1.20	.88	2.08	2.00	1.25	1.24	24.49	23.50	44
															25.00	463
															24.00	497
															25.00	584
11.64	7.97	2.37	2.62	12.96	12.00	10.34	9.25	3.07	.93	4.00	4.00	*1.69	1.81	28.36	30.00	488
															30.00	582
13.32	6.81	1.89	2.05	10.75	8.50	8.70	7.50	6.77	.....	*6.77	7.00	*3.30	3.70	34.76	34.00	653
9.47	8.03	2.81	2.22	13.06	12.00	10.84	9.25	3.47	.67	4.14	4.00	*1.71	1.81	28.82	31.00	203
															30.00	487
															21.00	108
															20.00	292
7.30	3.91	3.57	2.26	9.74	8.00	7.48	7.00	1.43	.....	1.43	1.00	.94	.82	19.06	17.00	96
															20.00	310
															21.00	652
10.50	5.43	3.83	3.08	12.34	9.00	9.26	8.00	3.16	.....	3.16	3.00	*1.58	1.65	25.74	25.00	489

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
293	†Special Potato Fertilizer	E. S. Brooks, York,
578	†Special Potato Fertilizer	John L. Dain, White Bear,
67	†Special 10 per cent. Potatoes,	R. D. Conover, Newtown,
577	†Special 10 per cent. Potatoes,	Jno. L. Dain, White Bear,
204	Standard Pure Bone Super Phosphate of Lime,	Frank D. Duffield, Langhorne,
485	†Standard Super Phosphate of Lime,	David Sterner, Allentown,
496	†Standard Super Phosphate of Lime,	De Long & Gackenbach, Schnecksville,
583	U. S. Super Phosphate,	Kachel & Griffith, Reading,
490	Vegetable Compound,	David Sterner, Allentown,
	MAPES FORMULA & PERUVIAN GUANO CO., NEW YORK.	
465	Average Soil Complete Manure,	Swartley Bros. & Co., Doylestown,
377	†Complete Manure "A" Brand,	R. F. Schwarz, Sprague ville,
466	†Complete Manure "A" Brand,	Swartley Bros. & Co., Doylestown,
378	†Corn Manure,	R. F. Schwarz, Sprague ville,
558	†Corn Manure,	C. P. Wells, Towanda,
256	†Economical Potato Manure,	Jno. L. Nissley, Middletown,
379	†Economical Potato Manure,	R. F. Schwarz, Sprague ville,
464	†Potato Manure,	Swartley Bros. & Co., Doylestown,
252	†Potato Manure,	Jno. L. Nisley, Middletown,
553	†Potato Manure,	Jas. Layton, Tunkhannock,
557	Tobacco Manure Wrapper Brand,	C. P. Wells, Towanda,
253	†Vegetable Manure,	Jno. L. Nissley, Middletown,
554	†Vegetable Manure,	Jas. Layton, Tunkhannock,
	MARYLAND FERTILIZER CO., BALTIMORE, MD.	
646	Ammoniated Bone,	W. A. Nickodemus, Curry,
308	Amomniated Fertilizer O. K.,	Jno. G. Simpson, Huntingdon,
	MILLER FERTILIZER CO., BALTIMORE, MD.	
286	Special Potato Fertilizer,	S. N. Bailey & Bro., Dillsburg,
285	W. G. Phosphate,	S. N. Bailey & Bro., Dillsburg,

For explanation of these tables see p. 27. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
10.07	5.21	3.86	2.70	**11.77**	9.00	**9.07**	8.00	3.55	.....	**3.65**	3.00	*1.54	1.65	25.59	26.00	233
															21.50	578
10.25	7.40	2.34	1.93	**11.67**	.....	**9.74**	8.50	3.33	5.95	*9.28	10.00	**1.92**	1.85	34.36	30.00	67
															28.50	577
7.60	8.33	3.28	2.18	**13.79**	12.00	**11.61**	10.00	2.09	.....	**2.09**	1.50	*2.07	2.35	28.80	31.00	204
7.10	7.44	2.43	3.38	**13.25**	12.00	*9.87	10.00	1.99	.....	**1.99**	1.50	*2.01	2.35	27.08	28.00	485
															26.00	496
9.11	6.25	2.25	2.35	**10.85**	8.00	**8.50**	7.00	1.60	.61	**2.21**	2.00	*1.20	1.32	22.28	24.00	583
10.62	6.50	2.09	1.99	**10.58**	8.75	**8.59**	7.75	6.80	.48	**7.28**	7.00	*3.56	3.70	36.18	.....	490
5.62	3.10	3.40	1.70	**8.20**	.....	*6.50	7.00	1.07	4.90	**5.97**	5.00	**4.14**	4.12	35.00	32.00	465
7.45	3.06	5.19	4.72	**12.97**	.....	*8.25	10.00	3.25	.....	**3.25**	2.50	**2.74**	2.47	29.48	35.75	377
															32.00	466
7.05	2.51	4.73	4.13	**11.37**	.....	*7.24	8.00	6.45	.....	**6.45**	6.00	*2.44	2.47	30.20	35.75	378
															36.00	558
9.65	2.27	2.30	2.67	**7.24**	.....	**4.57**	4.00	.30	8.30	**9.10**	8.00	**3.63**	3.29	35.28	36.00	256
															36.75	379
5.80	4.13	3.34	2.54	**10.01**	.....	*7.47	8.00	.67	7.20	**7.87**	6.00	**3.71**	3.71	37.23	36.00	464
															41.00	252
															39.00	553
4.23	.35	2.47	2.96	**5.78**	.....	*2.82	4.50	.53	11.19	**11.72**	10.50	*6.17	6.18	45.78	45.00	557
5.67	3.38	3.71	2.27	**9.36**	.....	**7.09**	6.00	.67	6.51	**7.18**	6.00	**5.05**	4.94	40.87	42.50	253
															40.00	554
9.57	6.80	1.65	3.32	**11.77**	9.00	**8.45**	8.00	2.32	.....	*2.92	3.00	**1.73**	1.65	25.41	25.00	646
9.35	5.93	2.10	.93	*8.96	9.00	**8.03**	8.00	2.91	.....	**2.91**	2.00	**1.01**	.82	20.92	22.00	308
8.02	5.36	1.70	.83	*7.89	8.50	**7.06**	7.00	5.98	.....	**5.98**	5.00	**.96**	.83	22.72	24.00	2 6
7.25	5.08	2.32	1.53	**8.93**	8.50	**7.40**	7.00	1.47	.....	**1.47**	1.00	**.53**	.41	17.28	18.50	285

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	MILSOM RENDERING & FERTILIZER CO., EAST BUFFALO, N. Y.	
588	B. B. Guano,	W. H. Hoffman, New Tripoli,
598	Buffalo Fertilizer,	Wm. F. Snyder, Stony Run,
437	Corn Fertilizer,	Tucker & Squires, Springboro,
255	Penna. Corn & Grain Grower,	Lord & Drake, Cambridge Springs,
608	†Potato, Hop & Tobacco Phosphate,	W. H. Diehl, Northumberland,
249		Walter B. Denny, Meadville,
626		J. H. Eddinger, Luthersburg,
594	Potato, Hop & Tobacco Phosphate,	I. G. Washburn, Montandon,
342	†Vegetable Bone Fertilizer,	Walter B. Denny, Meadville,
605		I. G. Washburn, Montandon,
357	†Wheat, Oats & Barley Phosphate,	Lord & Drake Cambridge Springs,
419		T. H. Schott, Danville,
341		Walter B. Denny, Meadville,
597		Wm. F. Snyder, Stony Run,
602		I. G. Washburn, Montandon,
625		J. H. Eddinger, Luthersburg,
	MORO PHILLIPS CHEM. CO., PHILADELPHIA, PA.	
590	Fish Guano,	J. J. Mitman, Bethlehem,
199	No. 1 Potato & Truck Manure,	M. M. Gillis, Penn's Dale,
	WM. C. NEWPORT CO., WILLOW GROVE, PA.	
69	10 per cent. Potash Phosphate,	H. C. Worstall, Newtown,
	NIAGARA FERTILIZER WORKS, BUFFALO, N. Y.	
164	†Niagara Potato, Tobacco & Hop Fertilizer,	J. A. McKee, Clintonville,
624		A. W. Smith, Falls Creek,
	OHIO FARMER'S FERTILIZER CO., COLUMBUS, OHIO.	
167	†General Crop Fish Guano,	Rob't Ivell, Clintonville,
526		B. F. McClure & Bro., Burgettstown,

For explanation of these tables see p. 27. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
8.32	1.93	2.51	1.98	**6.42**	6.00	*4.44	5.00	1.13	.....	**1.13**	1.00	**1.93**	1.85	18.81	19.00	588
7.70	4.51	2.44	2.90	**9.85**	9.00	*6.95	8.00	1.07	.48	*1.55	4.00	**1.79**	.82	22.21	24.00	598
12.09	4.45	3.25	3.19	**10.89**	10.00	*7.70	9.00	2.01	.....	**2.01**	2.00	*2.22	2.50	25.02	27.00	437
9.86	4.38	3.71	1.25	**9.34**	9.00	**8.09**	8.00	1.15	.....	**1.15**	1.00	**.84**	.82	18.62	23.00	355
															28.50	608
8.75	5.52	2.54	1.75	**9.81**	9.00	**8.06**	8.00	3.48	.....	**3.48**	3.00	*1.81	2.06	24.87	28.00	343
															32.00	626
10.16	4.19	2.57	2.27	**9.03**	9.00	*6.76	8.00	3.67	.....	**3.67**	3.00	*1.92	2.06	24.12	28.00	604
															34.00	342
10.86	5.88	1.70	2.04	**9.62**	9.00	*7.58	8.00	5.00	.....	*5.00	7.00	**3.81**	3.29	33.48	34.00	605
															24.00	357
															25.00	419
															23.00	341
8.82	4.89	2.83	2.12	**9.84**	9.00	*7.72	8.00	1.80	.....	*1.80	2.00	**1.09**	.82	20.30	23.00	597
															24.00	602
															25.00	625
8.62	3.93	3.22	1.71	**8.86**	6.00	**7.15**	5.00	1.52	.....	**1.52**	1.00	*1.68	1.85	21.27	25.00	500
6.74	6.00	1.92	1.56	*9.48	10.00	*7.92	8.00	6.49	.....	**6.49**	6.00	*1.80	2.06	27.79	30.00	199
7.72	2.95	2.33	3.80	**9.08**	8.00	*5.28	6.00	8.71	.....	*8.71	10.00	**1.65**	1.65	27.33	29.00	69
															28.00	164
9.37	4.77	3.37	2.74	**10.88**	9.00	**8.14**	8.00	3.59	.....	**3.59**	3.00	**2.06**	2.05	26.41	24.40	624
															22.00	167
9.10	1.94	6.13	2.94	**11.01**	9.00	**8.07**	8.00	1.06	.....	**1.06**	1.00	*.78	.82	18.79	24.00	526

*Constituent falls below guarantee.

Sample number	Manufacturer and Brand.	From Whom Sample Was Taken.
171	Improved Wheat Maker,	Eugene Burnitt, Utica,
173	Potato and Truck Fertilizer,	A. J. Andrews, Cochranton,
659	Tobacco Grower, Potato & Truck Fertilizer,	W. M. Hawthorne, Sturgis,
	OSCEOLA FERTILIZER CO., OSCEOLA MILLS, PA.	
631	†Ideal Mixture,	J. R. Staver, Clearfield,
632		R. R. Fleming, Houtzdale,
	PACIFIC GUANO CO., NEW YORK.	
59	†A No. 1 Phosphate,	J. G. Hackman, Lansdale,
495		F. P. Semmel, Unionville,
60	†Nobsque Guano,	J. G. Hackman, Lansdale,
444		C. F. Meyers, McKane,
58	†Potato Phosphate,	J. G. Hackman, Lansdale,
445		C. F. Meyers, McKane,
	PACKER'S UNION FERTILIZER CO., NEW YORK.	
26	†American Wheat and Rye Grower,	J. W. Glatfelder, Rossville,
541		Wm. S. Weller, Husband,
285	Animal Corn Fertilizer,	N. D. Bowman, Stanton's Mills,
249	†Animal Corn Fertilizer,	M. O. Reagle, Mt. Bethel,
533		Maust & Reitz, Confluence,
405	H. G Animal Corn Fertilizer,	R. C. Heffley, Berlin,
329	†H. G. Potato Manure,	H. J. Krumenacker, Carrolltown,
540		Wm. S. Weller, Husband,
370	H. G. Universal Fertilizer,	Levi H. Miller, Reeders,
247	†Potato Manure,	M. O. Reagle, Mt. Bethel,
71		H. C. Worstall, Newtown,
531		Maust & Reitz, Confluence,
70	†Universal Fertilizer,	H. C. Worstall, Newtown,
254		Jno. L. Nisley, Middletown,
37		J. W. Glatfelter, Rossville,
321		H. J. Krumenacker, Carrolltown,
532		Maust & Reitz, Confluence,
542		Wm. S. Weller, Husband,

For explanation of these tables see p. —. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
9.57	1.93	5.22	1.52	*8.67	9.00	*7.15	8.00	2.77	.....	2.77	2.50	.49	.41	17.74	21.00	171
8.79	5.90	3.38	1.23	10.51	9.00	9.28	8.00	.....	3.31	*3.31	4.00	*1.84	2.47	26.58	28.50	173
5.00	2.01	4.63	2.76	9.40	9.00	*6.64	8.00	3.07	.....	*3.07	4.00	*1.63	2.47	22.40	29.00	659
6.20	.36	2.59	3.89	6.84	4.00	*2.95	3.00	2.80	.....	*2.80	3.00	*1.55	1.70	18.13	26.00	631
															25.00	632
13.15	4.66	3.93	2.11	10.70	8.00	8.59	7.00	2.05	.....	2.05	1.00	1.16	.82	21.63	23.00	59
															24.00	495
9.68	5.08	3.59	1.05	9.72	9.00	8.67	8.00	2.02	.....	2.02	2.00	1.13	1.02	21.18	22.50	60
															22.00	444
15.21	4.47	3.08	1.99	9.54	7.00	7.55	6.00	4.57	.....	*4.57	5.00	1.40	1.23	23.90	28.00	58
															25.00	445
7.97	5.09	3.58	1.63	10.30	9.00	8.67	8.00	2.26	.....	2.26	2.00	.87	.82	20.64	18.00	36
															21.00	541
11.05	7.45	2.29	1.13	10.87	9.00	9.74	8.00	2.25	.....	2.25	2.00	*2.32	2.47	27.20	25.00	385
11.52	6.46	2.65	1.57	10.68	9.00	9.11	8.00	2.31	.....	2.31	2.00	*2.37	2.47	26.88	28.00	249
															28.00	533
9.05	6.47	2.85	1.85	11.17	9.00	9.32	8.00	3.38	.....	3.38	2.00	*2.33	2.47	28.33	27.00	405
8.18	5.92	2.17	1.37	9.46	9.00	8.09	8.00	6.57	.....	6.57	6.00	*1.83	2.05	28.09	27.00	320
															29.00	540
11.65	2.98	7.01	.92	10.91	9.00	9.99	8.00	3.53	1.85	5.18	4.00	.98	.82	25.35	26.90	370
10.23	5.51	3.36	1.76	10.63	9.00	8.87	8.00	5.52	.....	*5.52	6.00	*1.92	2.05	28.21	30.00	247
															30.00	71
															30.00	531
															25.00	70
															24.00	254
11.02	5.61	2.93	1.40	9.94	9.00	8.54	8.00	4.14	.....	4.14	4.00	.88	.82	22.57	23.00	37
															21.00	321
															26.00	532
															23.00	542

*Constituent falls below guarantee.

Sample number	Manufacturer and Brand.	From Whom Sample Was Taken.
248	Wheat and Rye Grower,	M. O. Reagle, Mt. Bethel,
	PATAPSCO GUANO CO., BALTIMORE, MD.	
92	†Coon Brand Guano,	Jacob Fritz, New Blcomfield,
39		D. R. Heck, Lewisberry,
95		Joseph Burkholder, Hummelstown,
141		Jonathan Geesey, Dallastown,
610		W. C. Rearick, Centre Hall,
552	Coon Brand Guano,	Benj. H. Brown, Tunkhannock,
93	Corn and Tomato Fertilizer,	Jacob Fritz, New Bloomfield,
40	Grain and Grass Producer,	D. R. Heck, Lewisberry,
142	Sea Gull Guano,	Jonathan Geesey, Dallastown,
94	Tobacco & Potato Fertilizer,	Hershey & Rupley, Marysville,
	PENNSYLVANIA AMMONIA & FERTILIZER CO., HARRISBURG, PA.	
258	Potato, Vegetable & Tobacco Fertilizer,	M. D. Ebersole, Middletown,
257	Special Brand Fertilizer,	M. D. Ebersole, Middletown,
	PITTSBURG PROVISION CO., PITTSBURG, PA.	
339	Keystone Fertilizer,	D. H. LeFevre, Hayfield,
340	Pure Bone with Potash,	D. H. LeFevre, Hayfield,
	R. H. POLLOCK, BALTIMORE, MD.	
635	Special Potato & Tobacco Fertilizer,	J. A. C. Rider, Tyrone,
633	Superior Corn & Tomato Fertilizer,	J. A. C. Rider, Tyrone,
	QUINNIPIAC CO., NEW YORK.	
282	†Climax Phosphate,	Paxton Flour & Feed Co., Bowmansdale,
425		H. G. Supplee, Bloomsburg,
200	†Special Potato,	M. Gillis, Penn's Dale,
244		Edward J. Houck, Bangor,
	RASIN-MONUMENTAL CO., BALTIMORE, MD.	
220	Monumental Potato Manure,	Wilson & Mendenhall, Toughkenamon,
276	Rasin's Dissolved Bone,	J. H. Warick, Mechanicsburg,

For explanation of these tables see p. 27. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
11.96	5.24	2.82	2.15	**10.22**	.....	**8.07**	.....	2.13	.....	**2.13**	.....	**.84**	.....	20.12	21.00	248
															19.00	92
															19.00	39
10.34	6.62	3.02	1.17	**10.81**	10.00	**9.64**	9.00	3.08	.....	**3.08**	3.00	**.92**	.82	22.69	18.50	95
															22.00	141
															25.00	610
10.05	7.22	2.36	1.07	**10.65**	10.00	**9.58**	9.00	3.12	.....	**3.12**	3.00	**.90**	.82	22.66	25.00	552
11.53	7.09	3.20	1.34	**11.63**	11.00	**10.29**	9.00	2.29	.....	**2.29**	2.00	***1.22**	1.23	23.84	22.00	93
10.40	6.65	3.59	2.03	**12.27**	10.00	**10.24**	8.00	2.68	.....	***2.68**	4.00	**1.25**	.82	24.64	22.00	40
11.19	2.65	6.15	1.63	**10.43**	9.00	**8.80**	8.00	1.24	.....	**1.24**	1.00	***.80**	.82	19.35	20.00	142
9.60	6.49	2.52	1.16	**10.17**	9.00	**9.01**	8.00	3.72	.....	***3.72**	4.00	**1.69**	1.65	25.56	25.00	94
7.89	4.19	4.97	1.56	**10.72**	10.50	**9.16**	9.00	11.24	.....	**11.24**	9.00	***1.43**	1.65	32.41	32.00	258
7.75	4.14	4.68	2.25	**11.07**	9.50	**8.82**	8.00	2.44	.....	**2.44**	2.00	**.92**	.82	21.33	18.50	257
4.20	1.69	4.76	6.45	**12.90**	11.00	***6.43**	9.00	.....	.93	***.93**	1.50	**2.64**	1.60	25.68	21.00	339
6.96	2.37	4.10	8.38	**14.85**	14.00	***6.47**	12.00	.53	2.26	***2.79**	3.00	**2.84**	2.50	29.55	27.00	340
7.52	7.06	2.59	2.46	**12.11**	10.00	**9.65**	9.00	4.25	.....	**4.25**	4.00	***1.75**	2.06	27.69	30.00	635
8.62	4.50	3.97	1.62	**10.09**	10.00	***8.47**	9.00	2.29	.....	**2.29**	2.00	**.98**	.82	20.96	22.00	633
10.76	5.52	3.72	2.18	**11.42**	9.00	**9.24**	8.00	2.47	.....	**2.47**	2.00	**1.32**	1.02	23.38	24.00	282
															25.00	425
8.95	2.38	4.20	2.41	**8.99**	8.00	**6.58**	6.00	5.12	.....	**5.12**	5.00	***1.13**	1.23	22.46	25.00	200
															28.00	244
7.87	1.83	6.73	3.26	**11.82**	7.00	**8.56**	6.00	4.89	.....	**4.89**	4.00	**1.52**	.82	26.00	22.90	220
7.27	5.62	5.28	3.61	**14.51**	11.50	**10.90**	10.00	.79	.....	**.79**	.....	***1.47**	1.64	24.79	21.75	276

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	E. RAUH & SONS FERTILIZER CO., INDIANAPOLIS, IND.	
353	Acidulated Bone,	Geo. Boda, Cambridge Springs,
344	Dissolved Bone and Potash,	E. R. Humeston, Guy's Mills,
350	†Special Corn & Potato,	Jas. Barieman, Meadville,
354	†Special Corn & Potato,	Geo. Boda, Cambridge Springs,
	READ FERTILIZER CO., NEW YORK CITY.	
159	Farmer's Friend Super Phosphate,	Fields Bros., Wellsboro,
364	Leader Blood and Bone Phosphate,	Jerome S. Williams, Stroudsburg,
158	Leader Guano,	Fields Bros., Wellsboro,
362	Practical Potato Special Fertilizer,	Jerome S. Williams, Stroudsburg,
346	†Standard Super Phosphate,	Lingo Bros., Guy's Mills,
157	†Standard Super Phosphate,	Fields Bros., Wellsboro,
363	†Standard Super Phosphate,	Jerome S. Williams, Stroudsburg,
156	Vegetable & Vine Fertilizer,	Fields Bros., Wellsboro,
	READING CHEM. & FERTILIZER CO., READING, PA.	
61	Potato and Vegetable Fertilizer,	H. C. Moyer, Perkasie,
	JOHN S. REESE & CO., BALTIMORE, MD.	
18	Fruit & Vine Fertilizer,	Ball & Rhodes, Media,
24	Pilgrim Fertilizer,	Matthew Elliott & Co., Media,
19	Potato Manure,	Ball & Rhodes, Media,
20	Standard Fertilizer,	Ball & Rhodes, Media,
559	Potato & Truck Special,	G. S. Vincent, So. Towanda,
	ENOS RICHMOND, ELMER, N. J.	
361	Special Corn, Truck & Potato Phosphate,	Jacob Chamberlain, Portland,
246	Special Potato Phosphate,	Jacob Chamberlain, Portland,
	RIVERSIDE ACID WORKS, WARREN, PA.	
175	Harvest Moon,	F. S. Vernier, Pettis,
174	Rich Acre,	F. S. Vernier, Pettis,

For explanation of these tables see p. 27. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
8.40	3.40	4.08	2.90	*10.38	11.00	*7.48	8.00	.70	.....	.50	.....	1.17	.82	19.10	19.00	353
9.24	4.49	4.26	4.84	13.59	11.00	8.75	7.00	1.93	.....	1.93	1.50	*1.26	1.65	23.37	26.50	344
7.46	4.44	3.97	5.99	14.40	9.00	8.41	6.00	2.53	1.49	4.02	2.00	*1.92	2.88	28.32	27.50	350
															30.00	354
10.25	4.87	1.65	1.16	*7.68	8.50	*6.52	8.00	9.68	.....	9.68	3.00	3.44	2.10	35.36	35.00	159
11.26	4.21	3.42	2.04	9.67	7.50	7.63	7.00	1.56	.....	1.56	1.00	.93	.83	19.22	20.00	364
12.32	4.94	2.59	1.38	8.91	7.50	7.53	7.00	1.33	.....	1.33	1.00	1.10	.83	19.27	22.00	158
7.02	1.53	3.12	2.65	7.30	.....	4.65	.....	8.00	.....	8.00	.....	.85	.....	22.21	28.00	362
															22.50	346
9.62	5.28	3.11	1.20	9.59	8.50	8.39	8.00	4.03	.....	4.09	4.00	.90	.83	22.22	22.00	157
															25.00	363
9.77	6.23	2.06	1.55	9.84	8.50	8.29	8.00	6.63	.....	6.63	6.00	*2.04	2.10	29.28	30.00	156
6.10	2.25	2.55	1.92	*6.72	9.00	*4.80	7.00	8.01	.....	8.01	5.50	*1.61	2.06	24.88	.....	61
7.77	5.89	3.93	.36	10.18	.....	9.82	.....	5.07	.96	6.03	.....	1.01	.....	25.99	26.00	18
8.50	1.44	7.24	1.99	10.67	10.00	8.68	8.00	2.70	.....	*2.70	4.00	.98	.82	21.39	25.00	24
9.70	7.73	3.07	.69	11.49	11.00	10.80	9.00	6.39	.....	*6.89	7.00	1.17	.82	28.66	26.00	19
10.70	7.32	2.70	.27	*10.29	11.00	10.02	9.00	2.47	.....	2.47	2.00	*2.43	2.47	27.87	26.00	20
10.40	5.55	2.38	3.01	10.94	10.00	*7.93	8.00	7.08	.....	7.08	7.00	*2.96	3.29	33.32	34.00	559
9.10	3.66	3.25	5.05	11.96	.....	6.91	.....	5.70	.....	5.70	.....	1.07	.....	24.45	23.00	361
11.32	6.31	2.27	1.73	10.31	.....	8.58	.....	11.60	.....	11.60	.....	1.67	.....	33.21	28.00	346
10.05	6.81	2.48	.22	9.51	7.75	9.29	7.00	.....	.86	*.86	1.10	.95	.80	19.92	18.00	175
12.00	9.80	1.22	.11	11.13	8.75	11.02	8.00	.....	1.70	1.70	1.60	1.86	1.60	26.49	26.00	174

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	ISAAC ROBINSON, BALTIMORE, MD.	
122	Special Potato & Tomato Phosphate,	A. J. Galbraith, Woodbine,
123	Standard Dissolved Bone Phosphate,	A. J. Galbraith, Woodbine,
	SCHAAL-SHELDON FERTILIZER CO., ERIE, PA.	
176	Corn & Potato,	Sheldon Brooks, Geneva,
178	Farmer's Favorite,	Sheldon Brocks, Geneva,
611	Farmer's Favorite for Wheat & Corn,	W. Sherbine, Willmore,
334	†Sheldon's Empire,	W. Sherbine, Willmore,
347		Louis Doubet, Frenchtown,
613	†Sheldon's Guano,	W. Sherbine, Willmore,
651		J. A. Einhipple, Albion,
348	Standard Phosphate,	Louis Doubet, Frenchtown,
	SCIENTIFIC FERTILIZER CO., PITTSBURG, PA.	
161	†Corn & Grain,	James Shaffer, Cyrus,
383		Davidsville,
	SCOTT FERTILIZER CO., ELKTON, MD.	
619	Elk Head Super Phosphate,	Miles Wrigley, Mahaffey,
620	Potato Fertilizer No. 2,	Miles Wrigley, Mahaffey,
	SHARPLESS & CARPENTER, PHILADELPHIA, PA.	
229	Evans's Potato Manure,	Geo. K. Linderman, White Bear,
227	†Gilt Edge Potato & Tobacco Manure,	Geo. K. Linderman, White Bear,
22		Matthew Elliott & Co., Media,
594		Louis F. Mosier, Mosierville,
284	No. 2 for Grain & Grass,	B. F. Cocklin, Granthani Sta.,
224	†Potato, Corn & Truck Guano,	Dewees & Bracken, Paoli,
193		G. M. Tule, Montoursville,
226		Geo. K. Linderman, White Bear,
228	†Royal Spring Mixture,	Geo. K. Linderman, White Bear,
360		Jno. F. Stier, Johnsonville,

For explanation of these tables see p. 27. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
9.01	6.10	2.31	1.33	*9.74	10.00	8.41	7.50	2.65	.....	2.65	2.25	1.68	1.65	23.88	22.00	122
10.44	8.15	2.52	1.07	11.74	11.50	10.67	10.00	2.43	.....	2.43	2.00	.96	.82	23.48	19.00	123
13.62	5.11	2.95	1.77	9.83	9.00	8.06	8.00	4.31	.....	4.31	4.00	*1.74	2.45	25.48	29.00	176
10.55	4.86	3.29	2.10	10.25	9.00	8.15	8.00	.....	3.33	3.33	2.00	*1.05	1.15	22.72	.....	178
9.43	4.39	3.32	2.38	10.09	9.00	*7.71	8.00	1.77	.....	*1.77	2.00	*1.14	1.15	20.47	22 00	611
8.60	3.62	4.00	1.63	9.25	.....	7.62	.....	1.71	.....	1.71	.....	.99	.....	19.29	22.00	334
															22.00	347
9.23	4.65	2.86	2.24	9.75	8.00	7.51	7.00	1.51	.....	1.51	1.00	1.74	1.65	22.20	23.00	613
															21.00	651
10.57	4.25	3.76	2.15	10.16	9.00	8.01	8.00	3.14	.....	3.14	2.00	*1.28	1.65	22.64	25.00	348
7.81	3.98	2.80	2.65	9.43	8.50	*6.78	7.00	3.24	.....	3.24	2.00	1.56	1.50	22.58	18 00	161
															18.00	383
7.32	6.95	3.31	1.56	11.79	.....	10.26	9.00	.....	1.50	1.50	1.00	*.77	.82	21.64	23.00	619
8.75	5.93	2.86	2.42	11.21	.....	8.79	6.00	5.53	.....	*5.53	10.00	2.16	1.65	29.44	26.00	620
9.28	4.88	2.58	1.53	8.99	7.00	7.46	6.00	8.89	.....	*8.80	10.00	*2.74	3.29	33.02	32.90	229
10.02	6.85	2.49	1.95	11.29	10.00	9.34	8.00	10.15	.....	10.15	10.00	1.70	1.65	32.94	29 00	227
															32 00	22
															30.00	594
9.52	7.92	3.97	.64	12.53	8.00	11.89	7.00	1.12	.....	1.12	1.00	*.53	.82	21.70	19.00	284
6.71	3.75	3.04	1.59	8.38	7.00	6.79	6.00	5.19	.....	5.19	5.00	1.40	1.23	23.48	24.00	224
															24.00	1'3
															22.50	226
10.25	4.85	4.13	1.65	10.63	10.00	8.98	8.00	2.18	.....	2.18	2.00	.87	.82	20.91	20.00	228
															24.00	360

*Constituent falls below guarantee.

Sample number	Manufactured and Brand.	From Whom Sample Was Taken.
	SHENANDOAH FERTILIZER CO., SHENANDOAH, PA.	
259	†Gold Eagle Brand,	J. A. Romberger, Elizabethville,
78		Wm. Lindsay, Reward,
305		Steininger Bros., Middleburg,
79	†N. & S. Complete Fertilizer,	Wm. Lindsay, Reward,
304		Steininger Bros., Middleburg,
306	Ringtown Clover,	Steininger Bros., Middleburg,
272	†Shenandoah Brand,	A. Cameron Bobb, Paxinos,
585		Mahlon C. Dietrich, Kempton,
587	Standard Potash Fertilizer,	Mahlon C. Dietrich, Kempton,
	M. L. SHOEMAKER & CO., PHILADELPHIA, PA.	
57	$23 Phosphate,	Kline Van Winkle, Glenside,
	CHAS. A. SICKLER & BRO., WILKES-BARRE, PA.	
373	Empire Phosphate,	Geo. Hoffner, Effort,
555	Special Manure for Potatoes & Vegetables,	Howard F. Brunges, Tunkhannock,
	H. H. SMYSER, YORK, PA.	
290	Chicago Bone & Potash,	H. H. Smyser, York,
291	Chicago Bone & Tankage,	H. H. Smyser, York,
	SOUTHERN FERTILIZING CO., YORK, PA.	
206	†Ammoniated Dissolved Bone,	Passmore & Gillispie, Nottingham,
294		Wagner & Earnst, York,
129		R. B. Hyson, Bridgeton,
501		Levin A. Lerch, Bethlehem,
615		Fletcher C. George, Lilly,
123	†Farmer's Choice Brand,	R. B. Hyson, Bridgeton,
150		J. W. Getts, Lock Haven,
47		Geo. Nell, Bermudian,
400		Simon Foust, Beachdale,
502		Levin A. Lerch, Bethlehem,
592		Jesse Weaver, Mosierville,

For explanation of these tables see p. 27. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
															16.00	259
9.35	3.74	3.82	2.19	**9.75**	8.00	**7.56**	7.00	1.12	.....	*1.12	1.85	*.76	.82	17.98	18.00	78
															19.00	305
															17.00	79
8.00	2.75	2.78	2.03	**7.56**	7.00	*5.53	6.00	.79	.....	*.70	1.00	**.83**	.41	15.57	18.00	304
9.40	3.98	4.07	2.65	**10.70**	.....	**8.05**	8.00	1.43	.....	*1.43	2.00	*1.04	1.65	20.24	23.00	306
															32.00	272
8.40	5.14	3.11	1.45	**9.70**	8.00	**8.25**	7.00	3.79	.....	*3.79	6.00	*.92	1.65	21.85	30.00	585
8.27	3.60	2.49	1.74	**7.83**	.....	*6.09	8.00	2.36	.....	*2.36	4.00	*.93	1.23	18.20	23.00	587
8.11	1.77	4.49	7.89	**14.15**	8.00	**6.26**	6.00	2.05	.....	**2.05**	1.00	**1.37**	.82	22.27	23.00	57
9.26	2.26	2.94	2.02	*7.22	18.00	*5.20	17.00	3.08	.....	**3.08**	2.00	*1.54	1.85	20.19	27.00	373
6.40	1.97	2.52	3.48	*7.97	9.00	*4.49	8.00	9.31	.....	**9.31**	6.50	*1.70	3.29	26.94	38.00	555
6.30	3.79	4.52	2.00	**10.31**	.....	**8.31**	8.00	4.21	.....	**4.21**	4.00	*.73	1.00	21.86	22.00	290
8.53	1.20	7.96	3.42	**12.58**	.....	**9.16**	8.00	.91	.....	*.91	1.00	*.48	1.00	18.87	20.00	291
															24.00	206
															26.00	294
9.93	6.12	3.72	1.68	**11.52**	11.20	*9.84	10.00	2.78	.....	**2.78**	2.50	*1.48	1.70	24.97	24.00	129
															23.00	501
															27.00	615
															20.00	128
															30.00	150
															21.00	47
9.10	4.85	3.53	1.42	*9.80	10.00	*8.38	9.00	2.29	.....	**2.29**	2.00	**.86**	.82	20.25	22.00	400
															21.00	502
															22.00	592

*Constituent falls below guarantee

Sample number	Manufacturer and Brand.	From Whom Sample Was Taken.
295	†General Crop Grower,	Wagner & Earnst, York,
299		Simon Foust, Beachdale,
402	†Queen of the Harvest,	Simon Foust, Beachdale,
611		Fletcher C. George, Lilly,
401	†Special Potato Grower,	Simon Foust, Berlin,
151		J. W. Getz, Jr., Lock Haven,
576		Levin A. Lerch, Bethlehem,
593		Jesse Weaver, Mosierville,
	STRAYER BROS., YORK, PA.	
275	Wheat, Corn & Grass Grower,	W. K. Strayer, York,
	SUSQUEHANNA FERTILIZER CO., BALTIMORE, MD.	
332	†Bone Phosphate,	C. Ness, Geistown,
569		B. A. Cramer, Monroeton,
478	†Potato Phosphate,	Geo. B. Passmore & Sons, Oxford,
333		C. Nees, Geistown,
563		B. A. Cramer, Monroeton,
281	Potato Phosphate,	H. S. Heisey, Williams Mills,
562	Susquehanna Crop Grower,	B. A. Cramer, Monroeton,
471	†XXV Phosphate,	Jos. Brown, Jennerville,
279		Geo. Bridges, Carlisle,
561		B. A. Cramer, Monroeton,
600		Alex. Billmeyer, Washingtonville,
	SWIFT & CO., CHICAGO, ILL.	
503	Pure Ammonia Bone & Potash,	C. H. Schmucker, Fridens,
	JAMES THOMAS, WILLIAMSPORT, PA.	
75	H. G. Potato Manure,	L. M. Watts, Bellville,
319	†H. G. Potato & Tobacco Manure,	Barker Bros., Ebensburg,
616		E. J. Hughes, Lilly,
617	H. G. Bone Super Phosphate,	E. J. Hughes, Lilly,

For explanation of these tables see p. 27. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
10.17	4.50	3.89	.90	**9.29**	9.00	**8.39**	8.00	3.24	.....	**3.27**	2.00	**.62**	.41	19.99	20.00	295
															20 00	399
16.31	5.42	4.13	1.67	***11.22**	17.50	***9.55**	10.00	2.59	.....	**2.59**	2.00	***1.21**	1.24	23.28	23.00	402
															25 00	614
															24.00	401
8.52	5.66	2.86	1.74	**10.26**	9.50	**8.52**	8.00	4.13	.....	**4.13**	4.00	***1.16**	1.24	23.62	32.00	151
															23.00	576
															27.00	593
7.42	4.66	3.80	1.24	**9.70**	.....	***8.46**	9.00	2.37	.....	**2.37**	2.00	**.84**	.82	20.25	21.00	275
9.08	4.19	4.20	4.22	**12.61**	10.00	**8.39**	8.00	2.36	.....	**2.36**	2.00	**1.63**	1.50	24.54	29.00	332
															28.00	560
															25 00	478
10.09	6.41	2.63	2.51	**11.55**	10.00	**9.04**	8.00	5.48	.....	**5.48**	5.00	**1.68**	1.50	28.09	23.00	333
															30 00	563
10.42	6.63	2.40	2.21	**11.24**	10.00	**9.03**	8.00	5.66	.....	**5.66**	5.00	**1.72**	1.50	28.11	27.00	281
6.34	2.51	5.09	5.48	**13.08**	9.00	**7.60**	7.00	1.42	.....	**1.42**	1.00	**.95**	.82	20.52	20.00	562
															15.00	471
8.75	5.35	4.18	2.77	**12.30**	10.00	**9.53**	8.00	1.40	.....	**1.40**	1.00	**1.05**	.82	22.02	24.00	279
															23.00	561
															13.00	600
6.55	3.67	4.96	8.04	**16.67**	16.00	**8.63**	.....	.53	1.78	***2.31**	3.00	***1.82**	4.75	27.25	23.00	503
9.45	4.85	3.32	1.66	***9.83**	13.00	***8.17**	9.00	5.64	.....	***5.64**	6.00	***2.03**	2.06	28.03	35.00	75
8.75	4.41	3.93	1.37	***9.71**	13.00	***8.34**	9.00	4.66	.....	***4.66**	6.60	***1.70**	2.06	25.66	34.00	319
															35.00	616
9.93	6.51	2.97	2.21	***11.69**	14.00	**9.48**	9.00	2.81	.....	**2.81**	2.50	***1.93**	2.06	26.61	30.00	617

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
315	†Klondyke Amoniated Phosphate,	Barker Bros., Ebensburg,
429		J. B. Smith, Washingtonville,
73	Special Compound,	L. M. Watts, Bellville,
316	Standard Phosphate,	Barker Bros., Ebensburg,
	TYGERT-ALLEN FERTILIZER CO., PHILA.	
571	Gold Edge Tobacco Manure,	J. Y. L. Ward, So. Towanda,
56	†Potato Fertilizer,	Thos. Nicholson & Son, Jenkintown,
245		A. W. Sandt, Bangor,
202	†Star Bone Phosphate,	Frank Duffield, Langhorne,
509		J. Y. L. Ward, So. Towanda,
511	Star Guano,	J. H. Thompson, Harmarville,
55	Star Potato Grower,	Thos. Nicholson & Son, Jenkintown,
216	Wheat & Grass Special,	E. B. Wood, Avondale,
	F. K. WALT CO., WAYNESBURG JCT., PA.	
239	Potato and Tobacco Manure,	Jno. Buchman, Geigertown,
579	XX Flesh Phosphate,	Jas. K. Bejler, Joanna,
	M. E. WHEELER & CO., RUTLAND, VT.	
627	†Corn Fertilizer,	Jonathan Shafer, Luthersburg,
322		John S. Wetsell, Carrolltown,
648		A. McKinley, Franklin Corners,
367	†Potato manure,	Harry Edinger, Bartonsville,
324		John S. Wetsell, Carrolltown,
660		Alva Smith, Little Cooley,
	WILLIAMS & CLARK FERTZ. CO., NEW YORK.	
233	Good Crop Potato Phosphate,	J. H. Gunkle, Bath,
89	†Good Grower Potato Phosphate,	H. L. Tressler, Newport,
392		J. M. Fike, Bills,
	THE R. A. WOOLDRIDGE CO., BALTIMORE, MD.	
8	Champion Giant Phosphate,	Franklin G. Evans, Kelton,
5	Triumph Pure Bone Phosphate,	Franklin G. Evans, Kelton,

For explanation of these tables see p. 27. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							*Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
11.21	6.81	2.50	1.05	**10.36**	10.00	**9.31**	9.00	3.00	.....	**3.09**	3.00	**.84**	.82	21.99	23.50	315
															20.00	429
11.20	7.51	2.48	1.20	**11.19**	11.00	**9.99**	9.00	3.06	.....	**3.06**	3.00	***.88**	1.03	23.13	25.00	73
10.45	4.95	3.88	1.03	***9.86**	10.00	**8.83**	8.00	3.17	.....	**3.17**	2.00	**.63**	.41	20.67	21.50	316
9.03	6.81	2.54	2.21	**11.56**	10.00	**9.35**	8.00	6.80	.....	**6.80**	6.00	**2.12**	2.06	31.12	30.00	571
11.16	5.23	3.30	2.03	**10.56**	10.00	**8.53**	8.00	2.16	.....	**2.16**	2.00	**.92**	.82	20.77	22.50	56
															22.00	245
9.92	5.99	3.16	2.58	**11.73**	10.00	**9.15**	8.00	3.20	.68	**3.88**	3.00	**2.10**	2.05	28.17	31.00	202
															26.00	569
8.65	6.00	2.72	2.41	**11.13**	10.00	**8.72**	8.00	3.03	.....	**3.03**	3.00	***1.92**	2.06	25.90	26.00	511
11.05	4.11	3.08	1.98	**9.17**	7.00	**7.19**	6.00	4.68	.....	***4.68**	5.00	***1.09**	1.23	22.50	26.00	55
4.49	1.86	3.34	.34	***5.54**	9.00	***5.20**	7.00	1.29	.....	**1.29**	1.00	**1.44**	.82	17.14	20.00	216
7.97	3.08	4.17	6.18	**13.43**	.....	**7.25**	.....	3.82	.....	**3.82**	.....	**.99**	.....	23.18	30.00	230
11.41	2.35	3.11	5.87	**11.33**	9.00	***5.46**	8.00	2.40	.25	**2.65**	2.00	***.81**	1.65	19.12	28.00	579
9.49	5.98	3.05	1.99	**11.02**	9.00	**9.03**	8.00	2.33	.....	**2.33**	2.00	***1.51**	1.64	23.78	25.00	627
															24.00	322
															25.00	648
9.72	5.27	3.25	2.02	**10.54**	9.00	**8.52**	8.00	3.27	.....	**3.27**	3.23	***1.93**	2.05	25.81	30.00	367
															26.00	324
															.....	660
11.93	3.85	3.18	1.83	**8.86**	7.00	**7.03**	6.00	4.73	.....	***4.73**	5.00	***1.16**	1.23	22.47	24.00	233
6.44	2.54	4.40	2.08	**9.02**	7.00	**6.94**	6.00	5.32	.....	**5.32**	5.00	**1.26**	1.23	23.26	25.00	89
															25.00	392
8.96	6.06	3.39	1.83	**11.28**	10.50	**9.45**	9.00	2.11	.....	**2.11**	2.00	**.91**	.82	21.72	21.00	8
7.55	5.28	2.79	1.52	***9.59**	10.00	**8.07**	8.00	4.25	.....	**4.25**	4.00	***1.18**	1.23	23.30	24.00	5

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	YORK CHEMICAL WORKS, YORK, PA.	
113	Dempwolf's N. Y. Phosphate, ...	J. L. Brodbeck, Hanover, ...
	ZELL GUANO CO., BALTIMORE, MD.	
274	†Economizer, ...	A. A. Ehrhart, Sprenkel's School House, ..
525		P. C. Steiner & Son, Bakerstown, ...
427	†Hustler Phosphate, ...	H. G. Supplee, Bloomsburg, ...
114		A. A. Ehrhart, Dallastown, ...
550		Peter Seip, Somerset, ...
546	Special Compound for Potatoes & Vegetables, ...	Peter Seip, Seipsville, ...
670	Special Compound for Potatoes, ...	W. M. Rice, Franklin, ...

For explanation of these tables see p. 27. †Composite sample.

LIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds. (Water Soluble.)				Nitrogen in 100 pounds.		Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.		Found.	Guaranteed.			
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.					
9.87	1.29	5.22	3.53	**10.04**	10.00	***6.51**	8.00	2.33	.....	**2.33**	2.00	**.67**	.41	18.10	17.50	113
7.44	7.20	2.64	1 99	**11.83**	.....	**9.84**	.....	2.18	.....	**2.18**	.....	**.85**	.....	22.28	19.50	274
															20.00	525
															25.00	427
8.95	8.14	2.64	1.80	**12.58**	11.00	**10.78**	9.00	3.16	.....	**3.16**	3.00	**.93**	.82	24.67	20.00	144
															23.50	550
9.75	8.04	1.65	1.72	**11.41**	10.00	**9.69**	8.00	4.42	.....	**4.42**	4.00	***2.34**	2.47	29.90	26.00	546
9.25	6.04	3.09	1.89	**11.02**	10.00	**9.13**	8.00	4.52	.....	**4.52**	4.00	***2.41**	2.47	29.42	29.00	670

*Constituent falls below guarantee.

ROCK AND POTASH

Furnishing Phosphoric

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	ALLENTOWN MFG. CO., ALLENTOWN, PA.	
188	Phosphate and Potash,	Callahan & Weaver, Montoursville,
	BALTIMORE PULVERIZING CO., BALTIMORE, MD.	
661	Anti Acid Phosphate,	A. J. Duchanois, Frenchtown,
387	Penniman's Excelsior Fertilizer,	H. J. Hoffman, Jenners,
307	†Special Spring Mixture,	Steininger Bros., Middleburg,
115		Sheffer & Fry, Hanover,
388		H. J. Hoffman, Jenners,
	BAUGH & SONS COMPANY, PHILADELPHIA, PA.	
398	Soluble Alkaline Super Phosphate,	Peter Fink, Somerset,
	A. H. BLAKER & CO., FOX CHASE, PA.	
473	Alkaline Bone,	Geo. W. Westcott, Oxford,
	BOWKER FERTILIZER CO., BOSTON, MASS.	
179	†Empire State Bone and Potash,	....., Colton,
352		Osro Wykoff, Woodcock,
	BRADLEY FERTILIZER COMPANY, BOSTON, MASS.	
330	Alkaline Bone,	A. F. Stutzman, Johnstown,
	S. B. BRODBECK, BRODBECK, PA.	
117	Alkaline Phosphate,	Sheffer & Fry, Hanover,
	CHEMICAL CO. OF CANTON, BALTIMORE, MD.	
221	†Soluble Bone and Potash,	Wilson & Mendenhall, Toughkenamon,
261		J. A. Romberger, Elizabethville,
43		Jacob S. Bashore, Newberrytown,
302		N. B. Winey, Middleburg,
639		H. M. Gay, Tyrone,
642		H. L. Stultz, Duncansville,
	CLARK'S COVE FERTILIZER CO., NEW YORK, N. Y.	
580	Triumph,	Solomon Livingood, Joanna,

For explanation of these tables see p. 27. †Composite sample.

FERTILIZERS.

Acid and Potash.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds.				Computed commercial value at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.				
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.			
9.76	3.38	10.67	2.58	**16.63**	13.00	**14.05**	12.00	4.29	.....	**4.29**	4.00	18.57	20.00	188
6.00	1.40	4.62	1.27	**7.29**	.....	**6.02**	.....	2.40	.....	**2.40**	.....	11.11	18.00	661
10.22	4.98	5.72	1.23	**11.93**	.....	**10.70**	.....	2.52	.....	**2.52**	.....	14.43	16.75	387
6.74	1.43	6.16	1.70	***9.29**	10.00	***7.59**	8.00	1.61	.....	**1.61**	1.25	11.38	15.00 14.00 16.00	307 115 388
12.85	7.21	3.98	.95	**12.14**	.....	**11.19**	10.00	2.26	.....	**2.26**	2.00	14.62	15.00	398
10.50	5.36	4.99	2.66	**13.01**	12.00	**10.35**	10.00	1.97	.....	***1.97**	2.00	14.20	17.00	473
11.35	5.78	3.49	1.72	**10.99**	9.00	**9.27**	8.00	3.07	.....	**3.07**	3.00	14.40	19.00 21.00	179 352
13.14	5.91	5.03	1.40	**12.34**	11.00	**10.94**	10.00	2.21	.....	**2.21**	2.00	14.43	19.00	330
12.55	8.21	3.13	.82	**12.16**	.....	**11.34**	.....	2.32	.....	**2.32**	.....	14.84	15.00	117
11.77	6.59	4.28	.93	***11.80**	12.00	**10.87**	10.00	2.05	.....	**2.05**	2.00	14.14	15.00 15.00 16.50 15.00 16.50 17.00	281 261 43 302 639 642
11.42	5.14	5.34	2.76	**13.24**	11.00	**10.48**	10.00	1.81	.....	***1.81**	2.00	14.16	15.00	580

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	E. FRANK COE CO., NEW YORK, N. Y.	
97	Dissolved Bone and Potash,	D. E. Brown, East Berlin,
	HENRY COPE & CO., LINCOLN UNIVERSITY, PA.	
205	Soluble Bone and Potash,	Passmore & Gillispie, Nottingham,
	JOSIAH COPE & CO., LINCOLN UNIVERSITY, PA.	
476	Soluble Bone and Potash,	Cope & Ivison, Oxford,
	CROCKER FERTILIZER & CHEMICAL CO., BUFFALO, N. Y.	
165	†Dissolved Bone and Potash,	O. B. Cross & Son, Clintonville,
440		C. R. Forbes, Albion,
	DETRICK FERTILIZER & CHEMICAL CO., BALTIMORE, MD.	
545	P. & B. Special Fertilizer,	Levi Berkey, Edie,
	JAS. G. DOWNWARD & CO., COATESVILLE, PA.	
147	Soluble Bone and Potash,	J. T. L. Hare, Flemington,
	EUREKA FERTILIZER CO., PERRYVILLE, MD.	
215	Alkaline Bone and Potash,	Kirk & Yerkes, Nottingham,
	GREAT EASTERN FERTILIZER CO., RUTLAND, VT.	
250	†Soluble Bone & Potash Fertilizer,	John Engle, Hummelstown,
393		J. M. Miller, Bills,
62		H. C. Moyer, Blooming Glen,
589		W. H. Hoffman, New Tripoli,
623		H. L. Robinson & Co., Punxsutawney,
	GRIFFITH & BOYD, BALTIMORE, MD.	
29	Potash Manure,	A. K. Straley, Hall,
119	XX Potash Manure,	A. M. Bechtel, Gitt's Run,
	HANOVER BONE FERTILIZER CO., HANOVER, PA.	
138	Hanover Dissolved Bone Phosphate,	Lebernight & Ferree, Red Lion,
	HUBBARD & CO., BALTIMORE, MD.	
417	Soluble Bone and Potash,	Boettinger & Dietz, Danville,
	LAZARETTO GUANO CO., BALTIMORE, MD.	
110	Dissolved Bone and Potash,	Z. H. Cashman, New Oxford,

For explanation of these tables see p. 27. †Composite sample.

FERTILIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds.				Computed commercial value at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.				
				Found.	Guaranteed.	Found.	Guaranteed.			Found	Guaranteed.			
9.55	6.79	3.99	4.28	**15.06**	12.00	**10.78**	10.00	.....	1.99	*1.99	2.00	15.63	18.00	97
9.00	2.46	7.11	1.05	**10.62**	10.00	**9.57**	9.00	2.20	.....	**2.20**	2.00	13.05	15.00	205
11.83	10.27	3.08	.79	**14.14**	12.00	**13.35**	11.00	2.42	.....	**2.42**	2.00	16.38	12.50	476
7.20	6.81	5.67	1.06	**13.54**	11.00	**12.48**	10.00	2.00	.....	**2.00**	2.00	15.14	23.00	165
													19.50	440
8.83	9.48	3.73	1.14	**14.35**	13.00	**13.21**	12.00	3.54	.....	**3.54**	3.00	17.50	16.50	545
7.17	1.93	5.58	2.55	**10.06**	.....	**7.51**	.....	2.85	.....	**2.85**	.....	12.97	23.00	147
11.84	3.93	5.42	2.88	**12.23**	12.00	***9.35**	10.00	2.40	.....	**2.40**	2.00	13.96	15.00	215
9.09	7.08	4.59	1.63	**13.30**	12.00	**11.67**	11.00	2.20	.....	**2.20**	2.00	15.09	15.00	250
													17.00	393
													.....	62
													19.00	589
													20.00	623
11.62	5.79	4.51	2.28	**12.58**	11.00	**10.30**	10.00	5.15	.....	***5.15**	5.50	17.36	19.00	29
12.67	5.56	4.40	2.25	**12.21**	11.00	***9.96**	10.00	5.16	.....	***5.16**	5.50	17.11	19.00	119
10.90	7.80	3.80	.75	**12.35**	11.00	**11.60**	10.00	1.72	.....	*1.72	2.00	14.31	17.00	138
8.10	3.94	5.55	2.72	**12.21**	.....	***9.49**	10.00	2.59	.....	**2.59**	2.00	14.20	16.00	417
12.82	5.16	5.63	1.33	**12.17**	11.00	**10.84**	10.00	2.25	.....	**2.25**	.....	14.29	14.50	110

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	MARYLAND FERTILIZER CO., BALTIMORE, MD.	
390	†Linden Super Phosphate,	U. D. Brancher, Somerset,
644		W. A. Nickodemus, Curry,
645	Bono Super Phosphate,	W. A. Nickodemus, Curry,
	MORO-PHILLIPS CHEMICAL CO., PHILADELPHIA, PA.	
240	†Alkaline Bone Phosphate,	Wm. Woodmaker, Wind Gap,
201		M. Gillis, Pennsdale,
470		Patterson Ramsey, Chatham,
	NIAGARA FERTILIZER WORKS, BUFFALO, N. Y.	
163	Niagara Dissolved Bone and Potash,	J. A. McKee, Clintonville,
	PACKER'S UNION FERTILIZER CO., NEW YORK, N. Y.	
371	†Wheat, Oats and Clover,	Levi H. Miller, Reeder's,
38		J. W. Glatfelter, Rossville,
404		R. C. Heffley, Berlin,
384	Wheat, Oats and Clover fertilizer,	N. D. Bowman, Stanton's Mills,
	READ FERTILIZER CO., NEW YORK, N. Y.	
155	Alkaline Bone or Bone and Potash,	Fields Bros., Wellsboro,
365	Alkaline Bone and Potash,	Jerome S. Williams, Stroudshurg,
	SCHAAL-SHELDON FERTILIZER CO., ERIE, PA.	
650	Dissolved Bone and Potash,	J. A. Einhiple, Albion,
	SCOTT FERTILIZER CO., ELKTON, MD.	
621	Tip Top Soluble Bone and Potash,	Miles Wigley, Mahaffey,
	SHARPLESS & CARPENTER, PHILADELPHIA, PA.	
84	†Soluble Bone and Potash,	Ulsh & Brandt, Millerstown,
283		B. F. Cocklin. Grantham,
	H. H. SMYSER, YORK, PA.	
289	Chicago Crop Grower,	H. H. Smyser, York,
	STANDARD FERTILIZER CO., NEW YORK, N. Y.	
414	Standard Bone and Potash,	Edward Beyer, Danville,

For explanation of these tables see p. 27. †Composite sample.

FERTILIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds.				Computed commercial value at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.				
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.			
7.92	6.83	5.02	1.15	**13.00**	12.00	**11.85**	11.00	2.26	.....	**2.26**	2.00	15.04	15.50	390
													17.50	644
9.97	8.59	3.61	.78	**12.98**	11.00	**12.20**	10.00	2.06	.....	**2.06**	2.00	15.13	15.00	645
10.52	5.14	5.39	1.67	**12.20**	12.00	**10.53**	10.00	2.26	.....	***2.26**	10.00	14.24	16.00	240
													17.00	201
													16.00	470
7.30	6.47	4.51	1.57	**12.55**	11.00	**10.98**	10.00	2.12	.....	**2.12**	.....	14.49	20.00	163
12.07	7.91	4.10	1.52	**13.53**	12.00	**12.01**	11.00	2.15	.....	**2.15**	2.00	15.31	20.00	371
													16.00	38
													18.00	404
13.50	7.72	4.71	.82	**13.25**	12.00	**12.43**	11.00	2.10	.....	**2.10**	2.00	15.24	18.00	384
11.95	6.32	4.89	.49	**11.70**	10.50	**11.21**	10.00	1.33	.24	***1.57**	2.00	13.69	19.00	155
10.85	3.79	6.23	2.21	**12.23**	10.50	**10.02**	10.00	2.18	.....	**2.18**	2.00	13.93	17.00	365
12.35	2.74	6.73	2.30	**11.77**	11.00	***9.47**	10.00	1.71	.....	***1.71**	2.00	12.97	18.00	650
12.15	8.92	4.90	1.28	**15.10**	.....	**13.82**	11.00	1.93	.....	***1.93**	2.00	16.21	20.00	621
10.66	5.31	6.09	1.01	**12.41**	12.00	**11.40**	10.00	2.60	.....	**2.60**	2.00	14.89	15.00	84
													16.00	283
12.41	2.54	5.56	3.36	**11.46**	.....	***8.10**	10.00	2.06	.....	**2.06**	2.00	12.87	16.00	289
9.00	6.06	5.34	1.85	**13.25**	11.00	**11.40**	10.00	1.97	.....	***1.97**	2.00	14.64	.....	414

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	STRAYER BROS., YORK, PA.	
26	Bone and Potash Mixture,	C. C. Kimmel, Mountain Top,
	SUSQUEHANNA FERTILIZER CO., BALTIMORE, M. D.	
331	Susquehanna Alkaline Bone Phosphate,	C. Neis, Geistown,
	JAMES THOMAS, WILLIAMSPORT, PA.	
76	†Pure Dissolved Soluble Bone & Potash Phosphate.	L. M. Watts, Belleville,
318		Barker Bros., Ebensburg,
	TYGERT-ALLEN FERTILIZER CO., PHILADELPHIA, PA.	
217	Soluble Bone and Potash,	E. B. Wood, Avondale,
	M. E. WHEELER & CO., RUTLAND, VT.	
323	†H. G. Wheat and Clover,	John S. Wetsell, Carrolltown,
543		Jacob S. Barkman, Somerset,
337	†Wheat and Clover,	Clint. Doutt, Norrisville,
647		A. McKinley, Franklin Corners,
	R. A. WOOLDRIDGE FERTILIZER CO., BALTIMORE, MD.	
7	Liberty Bell Potash Mixture,	Franklin G. Evans, Kelton,
	YORK CHEMICAL WORKS, YORK, PA.	
114	†Dempwolf's Black Cross Phosphate and Potash.	J. L. Brodbeck, Hanover,
131		R. B. Hyson, Bridgeton,
112	†Red Cross Phosphate and Potash,	J. L. Brodbeck, Hanover,
136		R. B. Hyson, Bridgeton,
	ZELL GUANO CO., BALTIMORE, MD.	
34	Dissolved Bone Phosphate & Potash,	Oliver F. Arnold, Clear Spring,
428	†Electric Phosphate,	H. G. Supplee, Bloomsburg,
549		Peter Seip, Seipsville,

For explanation of these tables see p. 27. †Composite sample.

FERTILIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Potash in 100 Pounds.				Computed commercial value at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.		Present as muriate.	Present as sulphate.	Total.				
				Found.	Guaranteed.	Found.	Guaranteed.			Found.	Guaranteed.			
13.33	10.13	2.29	.63	**13.05**	.....	**12.42**	11.00	1.96	.....	***1.96**	2.00	14.10	17.00	26
10.44	3.94	6.29	2.12	**12.35**	12.00	**10.23**	10.00	2.53	.....	**2.53**	2.00	14.38	23.00	331
13.40	9.53	2.39	.75	**12.67**	12.00	**11.92**	11.00	2.42	.....	**2.42**	2.00	15.40	18.75	76
													18.00	318
9.69	4.60	6.09	.27	***10.96**	11.50	**10.69**	10.00	1.95	.....	***1.95**	2.00	13.46	17.00	217
11.53	7.81	3.57	1.23	**12.61**	12.00	**11.38**	11.00	2.38	.....	**2.38**	2.00	15.06	18.00	323
													15.00	543
7.81	7.28	4.43	1.50	**13.24**	12.00	**11.71**	11.00	2.21	.....	**2.21**	2.00	15.12	....	337
													20.00	647
12.39	9.30	4.20	1.0[illegible]	**14.52**	13.00	**13.50**	12.00	.93	1.99	***2.92**	3.00	17.30	17.00	7
10.87	2.37	6.39	2.64	***11.40**	12.00	***8.76**	10.00	2.19	.....	**2.19**	2.00	13.14	14.50	114
													14.75	131
10.69	3.83	4.68	2.99	***11.50**	12.00	***8.51**	10.00	4.34	.....	***4.34**	5.00	15.49	17.50	112
													17.75	130
9.61	10.09	2.75	1.48	**14.32**	13.00	**12.84**	11.00	1.92	.....	***1.92**	2.00	15.80	16.00	34
7.72	7.46	3.83	2.33	**13.62**	12.00	**11.29**	10.00	2.11	.....	**2.11**	2.00	15.06	18.00	428
													18.00	549

*Constituent falls below guarantee.

DISSOLVED BONE

Furnishing Phosphoric

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	CLEVELAND PROVISION CO., CLEVELAND, OHIO.	
667	Packing House Fertilizer, ...	Leonard Emig, Jr., Meadville, ...
	LISTER'S AGRICULTURAL CHEMICAL WORKS, NEWARK, N. J.	
209	†Celebrated Ground Bone Acidulated, ...	Passmore & Gillispie, Nottingham, ...
432		J. A. Froutz, Saegerstown, ...

For explanation of these tables see p. 27. †Composite sample.

FERTILIZERS.

Acid and Nitrogen.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Nitrogen in 100 Pounds.		Computed commercial value at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.						
				Found.	Guaranteed.	Found.	Guaranteed.	Found.	Guaranteed.			
4.10	.42	5.49	8.91	**14.82**	.....	**5.91**	.....	**5.81**	.....	35.47	.....	667
4.07	1.95	4.73	6.93	**13.61**	.....	***6.68**	12.00	**3.28**	2.70	26.26	26.00	209 432

*Constituent falls below guarantee.

GROUND BONE

Furnishing Phosphoric

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	ALLEGHENY CITY FERTILIZER WORKS, ALLEGHENY, PA.	
166	Pure Raw Bone Meal,	A. H. Layton, Crawford's Corners,
509	Raw Bone Meal,	L. & H. Hoberg, Sharpsburg,
	ALLENTOWN MANUFACTURING CO., ALLENTOWN, PA.	
185	Pure Ground Bone,	Callahan & Weaver, Montoursville,
	AMERICAN REDUCTION CO., PITTSBURGH, PA.	
184	Fine Ground Bone,	Horn & Hoover, Atlantic,
	BAUGH & SONS COMPANY, PHILADELPHIA, PA.	
13	Bone Meal, warranted fine,	C. Frank Williamson, Media,
	BERG COMPANY, PHILADELPHIA, PA.	
9	Raw Bone Fine,	J. W. Perkins, Elam,
	BRADLEY FERTILIZER CO., BOSTON, MASS.	
329	Abattoir Bone,	A. F. Stutzman, Johnstown,
	CAMBRIA FERTILIZER CO., JOHNSTOWN, PA.	
314	Pure Fine Ground Bone Dust,	H. A. Shoemaker, Ebensburg,
	HENRY COPE & CO., LINCOLN UNIVERSITY, PA.	
210	Steamed Bone,	Passmore & Gillispie, Nottingham,
	JOSIAH COPE & CO., LINCOLN UNIVERSITY, PA.	
468	Pure Ground Bone,	Chester Co. Ass'n of Farmers, Kelton,
	CROCKER FERTILIZER & CHEMICAL CO., BUFFALO, N. Y.	
666	Pure Ground Bone,	Charles Stoltz, Meadville,
	EUREKA FERTILIZER CO., PERRYVILLE, MD.	
2	Ground Bone,	London Grove Grange, Chatham,
	JARECKI CHEMICAL CO., SANDUSKY, OHIO.	
449	Pure Ground Bone,	P. F. Cutter, West Green,

For explanation of these tables see p. 27. †Composite sample.

FERTILIZERS.

Acid and Nitrogen.

Moisture in 100 pounds.	Mechanical Analysis.		Chemical Analysis.				Computed commercial value at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Diameter less than $\frac{1}{50}$ inch, "fine."	Diameter greater than $\frac{1}{50}$ inch, "coarse."	Phosphoric Acid.		Nitrogen.				
			Found.	Guaranteed.	Found.	Guaranteed.			
5.55	57	43	**23.35**	22.00	**3.62**	2.50	27.42	.....	166
5.34	44	56	**23.80**	22.00	**3.76**	2.50	26.64	29.00	509
7.70	80	20	***23.36**	25.00	***3.67**	4.00	29.64	30.00	185
6.55	54	46	***19.44**	23 00	**3.83**	3.29	24.93	28.00	184
6.77	90	10	***20.78**	21.50	**3.73**	3.50	28.80	30.00	13
14.30	67	33	**22.22**	20.00	**3.44**	3.29	27.08	27.00	9
3.25	86	14	**16.70**	.....	***1.51**	2.00	19.92	27.00	329
6.90	43	57	**22.05**	20.00	**3.75**	3.00	25.44	28.00	314
5.07	81	19	**26.90**	.....	**2.20**	.....	29.10	25.00	210
8.61	53	47	**22.52**	21.00	**3.83**	3.29	26.90	27.00	468
4.71	83	17	**23.18**	20.00	**2.83**	2.46	27.93	35.00	666
3.50	85	15	**25.19**	23 00	***2.39**	2.47	28.64	25.00	2
7.00	70	30	***18.84**	26.00	**3.68**	2.47	25.48	.....	449

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	LISTER'S AGRICULTURAL CHEMICAL WORKS, NEWARK, N. J.	
658	Celebrated Ground Bone,	W. M. Hawthorne, Sturgis,
450	Pure Bone Meal,	D. H. Myers, West Green,
51	Pure Raw Bone Meal,	Ruth & Rickabaugh, Newtown Square,
	MORO-PHILLIPS CHEMICAL CO., PHILADELPHIA, PA.	
475	Steamed Bone,	Geo. W. Westcott, Oxford,
	WM. C. NEWPORT CO., WILLOW GROVE, PA.	
457	Pure Bone Dust,	James E. Magill & Son, Bristol,
	PACIFIC GUANO CO., NEW YORK, N. Y.	
443	Fine Ground Bone,	C. F. Myers, McKean,
	E. RAUH & SONS FERTILIZER CO., INDIANAPOLIS, IND.	
349	Pure Ground Bone,	Geo. Barickman, Meadville,
	SCHAAL-SHELDON FERTILIZER CO., ERIE, PA.	
177	Pure Bone Meal,	Seldon Brooks, Geneva,
	SHARPLESS & CARPENTER, PHILADELPHIA, PA.	
225	Ground Bone,	Dewees & Bracken, Paoli,
23	Pure Bone Meal,	Matthew Elliott & Co., Media,
	SHENANDOAH FERTILIZER CO., SHENANDOAH, PA.	
273	Pure Ground Bone,	A. Cameron Bobb, Paxinos,
	M. L. SHOEMAKER & CO., PHILADELPHIA, PA.	
17	Pure Raw Bone Meal,	Baugh & Rhodes, Media,
	CHAS. A. SICKLER & BRO., WILKES-BARRE, PA.	
556	Pure Ground Bone,	Howard F. Brunges, Tunkhannock,
	SWIFT & CO., CHICAGO, ILL.	
505	Bone Meal,	C. H. Schmucker, Friedens,
219	Pure Bone Meal,	Wilson & Mendenhall, Toughkenamon,

For explanation of these tables see p. 27. †Composite sample.

FERTILIZERS—Continued.

Moisture in 100 pounds.	Mechanical Analysis.		Chemical Analysis.				Computed commercial value at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Diameter less than $\frac{1}{50}$ inch, "fine."	Diameter greater than $\frac{1}{50}$ inch, "coarse."	Phosphoric Acid.		Nitrogen.				
			Found.	Guaranteed.	Found.	Guaranteed.			
4.32	63	37	**14.24**	12.00	**3.17**	2.70	20.43	28.00	658
4.27	67	33	**23.94**	23.00	**2.71**	2.68	26.64	.....	450
4.51	64	36	**24.05**	23.00	**2.84**	2.68	26.76	27.00	51
4.05	91	9	***17.21**	18.00	**2.74**	2.47	23.61	26.00	475
5.55	66	34	**23.09**	22.00	***3.42**	3.71	27.54	29.00	457
5.22	88	12	**14.30**	.....	**2.14**	2.00	19.68	25.00	443
4.07	76	24	**18.10**	18.00	***2.15**	2.47	21.82	27.50	349
8.30	56	44	**24.14**	22.00	**3.19**	2.85	26.83	.....	177
5.77	62	38	**18.00**	.....	**2.63**	.....	21.86	30.00	225
5.85	77	23	***20.56**	20.61	**3.34**	.....	26.53	35.00	23
10.60	74	26	***20.39**	22.00	***1.96**	2.88	22.93	28.00	273
6.02	86	14	**25.15**	20.61	**3.42**	3.29	31.05	32.00	17
4.08	83	17	**27.13**	22.00	***2.21**	2.47	29.52	30.00	556
4.28	93	7	**26.22**	25.00	**2.76**	2.50	31.08	28.00	505
4.08	87	13	**25.24**	23.00	***2.83**	3.75	29.95	25.00	219

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	JAMES THOMAS, WILLIAMSPORT, PA.	
146	Pure Animal Bone, ...	McCalmont & Co., Bellefonte, ...
	R. A. WOOLDRIDGE FERTILIZER CO., BALTIMORE, MD.	
4	Tuckahoe Bone Meal, ...	Franklin G. Evans, Kelton, ...

For explanation of these tables see p. 27. †Composite sample.

FERTILIZERS—Continued.

Moisture in 100 pounds.	Mechanical Analysis.		Chemical Analysis.				Computed commercial value at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Diameter less than $\frac{1}{50}$ inch, "fine."	Diameter greater than $\frac{1}{50}$ inch, "coarse."	Phosphoric Acid.		Nitrogen.				
			Found.	Guaranteed.	Found.	Guaranteed.			
6.07	75	25	**15.91**	.....	**2.78**	.....	21.61	30.00	146
7.25	75	25	**17.32**	14.00	***2.35**	2.47	21.61	24.00	4

*Constituent falls below guarantee.

ACIDULATED ROCK

Furnishing

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	ARMOUR FERTILIZER WORKS, CHICAGO, ILL.	
442	†Star Phosphate,	John F. Chisholm, Sterrettania,
536		J. Hoffman & Son, Jenners,
	BAUGH & SONS CO., PHILADELPHIA, PA.	
455	†H. G. Acid Phosphate,	Dewees & Bracken, Paoli,
103		J. W. Ruff, New Oxford,
676		A. Gaddis & Co., Uniontown,
	A. H. BLAKER & CO., FOX CHASE, PA.	
494	Blaker's Wonder,	C. P. Wotring, Unionville,
	BOWKER FERTILIZER CO., BOSTON, MASS.	
374	Apex Bone,	Alvin Sax, Effort,
264	Apex Bone Phosphate,	S. & J. W. Stroh, Sunbury,
189	†Dissolved Bone Phosphate,	J. R. Hood, Colton,
154		Bailey & Converse, Wellsboro,
376		Alvin Sax, Effort,
	BRADLEY FERTILIZER CO., NEW YORK, N. Y.	
327	†Soluble Dissolved Bone,	A. F. Stutzman, Johnstown,
168		J. B. Miller, Wesley,
514		S. J. Saint, Sharpsburg,
668		J. H. Davidson & Son, Franklin,
	CHEMICAL CO. OF CANTON, BALTIMORE, MD.	
267	†Baker's Dissolved Bone Phosphate,	L. Campbell, Sunbury,
479		Morris Nauman, Stroudsburg,
262		J. A. Romberger, Elizabethville,
535		Josiah Specht, Kantner,
638		H. M. Gray, Tyrone,
673		King Bros., Uniontown,
641	†Baker's Pure Dissolved S. C. Bone,	H. L. Stultz, Duncansville,
643		Skyles Miller & Co., Martinsburg,

For explanation of these tables see p. 27. †Composite sample.

PHOSPHATES.

Phosphoric Acid.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Computed commercial value at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.				
				Found.	Guaranteed.	Found.	Guaranteed.			
12.81	11.39	5.55	1.21	**18.15**	16.00	**16.94**	14.00	15.18	15.00	442
									16.50	536
9.20	11.18	4.17	1.14	**16.49**	.....	**15.35**	14.00	14.18	14.00	455
									13.00	103
									14.00	676
9.20	12.02	3.42	.60	**16.04**	.....	**15.44**	.....	14.13	12.50	494
10.62	2.49	8.37	2.51	**13.37**	10.00	**10.86**	9.00	10.92	12.50	374
7.80	3.87	6.28	3.35	**13.50**	10.00	**10.15**	9.00	10.96	.....	264
11.45	6.29	5.89	2.51	**14.69**	13.00	**12.18**	11.00	12.18	16.00	180
									18.00	154
									13.00	376
7.87	10.29	5.32	1.62	**17.23**	.....	**15.61**	14.00	14.41	15.00	327
									18.00	168
									15.00	514
									20.00	668
8.64	11.20	4.50	.97	**16.67**	16.00	**15.70**	14.00	14.31	13.00	267
									15.00	479
									14.00	262
									16.00	535
									15.00	638
									13.50	673
9.52	11.01	4.34	1.08	**16.43**	16.00	**15.35**	14.00	14.13	15.00	641
									15.00	643

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	CLARK'S COVE FERTILIZER CO., NEW YORK, N. Y.	
268	Acid Phosphate,	A. Cameron Bobb, Paxinos,
574	†Atlas,	Fowler Ellis, Franklindale,
271	†Atlas,	A. Cameron Bobb, Paxinos,
581	†Atlas,	Solomon Livingood, Joanna,
	E. FRANK COE CO., NEW YORK, N. Y.	
99	High Grade Acid Phosphate,	D. E. Brown, East Berlin,
242	High Grade Acid Phosphate,	Wm. H. Mengel, Saylorsburg,
	HENRY COPE & CO., LINCOLN UNIVERSITY, PA.	
223	Acid Phosphate,	E. B. Wood, Avondale,
	JOSIAH COPE & CO., LINCOLN UNIVERSITY, PA.	
467	Acidulated Phosphate,	Chester Co. Ass'n of Farmers, Kelton,
	CROCKER FERTILIZER & CHEMICAL CO., BUFFALO, N. Y.	
439	Dissolved Bone Phosphate,	C. R. Forbes, Albion,
	CUMBERLAND BONE PHOSPHATE CO., PORTLAND, ME.	
386	Cumberland Dissolved Bone Phosphate,	J. J. Zimmerman, Jenner township,
	DETRICK FERTILIZER & CHEMICAL CO., BALTIMORE, MD.	
90	Dissolved S. C. Bone,	Wm. Lindsay, Newport,
	LOUIS F. DETRICK, BALTIMORE, MD.	
207	Orchilla Guano,	Passmore & Gillespie, Nottingham,
	EUREKA FERTILIZER CO., PERRYVILLE, MD.	
3	P. & P. Super Phosphate,	Londongrove Grange, Chatham,
	FARMER'S UNION FERTILIZER CO., NEW YORK, N. Y.	
91	Acidulated Bone,	J. W. Klinepetir, New Bloomfield,
	GREAT EASTERN FERTILIZER CO., RUTLAND, VT.	
567	Dissolved Bone,	M. A. Cramer, Monroeton,

For explanation of these tables see p. 27. †Composite sample.

PHOSPHATE—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Computed commercial value at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.				
				Found.	Guaranteed.	Found.	Guaranteed.			
2.62	3.88	4.81	2.72	**11.41**	.....	**8.69**	.....	9.86	13.00	268
									18.00	574
8.92	8.24	6.93	1.22	**16.39**	15.00	**15.17**	14.00	13.75	14.00	271
									13.50	581
10.88	8.75	4.50	3.45	**16.70**	.....	***13.25**	16.00	13.45	15.00	99
7.87	10.41	5.06	1.42	**16.89**	.....	***15.47**	16.00	14.27	12.00	242
9.70	8.97	5.27	.80	**15.04**	15.00	**14.24**	14.00	13.12	12.00	223
11.81	11.89	3.73	1.03	**16.65**	15.00	**15.62**	14.00	14.38	11.00	467
6.50	9.90	6.32	1.61	**17.83**	15.00	**16.22**	14.00	14.72	18.00	439
13.19	11.31	4.03	1.01	**16.35**	15.00	**15.34**	14.00	14.13	14.00	386
11.70	10.18	4.42	1.45	**16.05**	15.00	**14.60**	14.00	13.71	14.00	90
4.40	.03	3.83	11.19	**15.05**	14.00	**3.86**	.....	9.55	15.00	207
10.52	9.82	4.58	1.98	**16.38**	16.00	**14.40**	14.00	13.74	12.00	3
3.22	12.39	3.82	1.43	**17.64**	.....	**16.21**	.....	14.94	14.00	91
7.87	11.32	4.57	1.17	**17.06**	16.00	**15.89**	14.00	14.53	13.00	567

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
422	Dissolved Bone Fertilizer,	Albert H. Morris, Danville,
	GRIFFITH & BOYD, BALTIMORE, MD.	
31	†High Grade Acid Phosphate,	A. K. Straley, Hall,
82		H. R. Beale, Oriental,
113	†Original Super Phosphate,	A. M. Bechtel, Gitt's Run,
32		A. K. Straley, Hall,
192		Callahan & Weaver, Montoursville,
408		E. A. Slagle, Paxinos,
	S. M. HESS & BRO., PHILADELPHIA, PA.	
491	H. G. Acid Phosphate,	Wm. H. Boyer, Minnichs,
	HUBBARD & CO., BALTIMORE, MD.	
416	H. G. Soluble S. C. Phosphate,	Boettinger & Dietz, Danville,
	JARECKI CHEMICAL CO., SANDUSKY, OHIO.	
179	C. O. D. Phosphate,	Eugene Burnett, Utica,
	LAZARETTO GUANO CO., Baltimore, Md.	
109	Dissolved Bone Phosphate,	Z. H. Cashman, New Oxford,
	MILSOM RENDERING & FERTILIZER CO., EAST BUFFALO, N. Y.	
356	†14 per cent. Acid Phosphate,	Lord & Drake, Cambridge Springs,
595		Wm. F. Snyder, Stony Run,
	MORO-PHILLIPS CHEMICAL CO., PHILADELPHIA, PA.	
64	Cereal Bone Phosphate,	Fretz & Slotter, Perkasie,
311	†Soluble Bone,	P. Moran, Gallitzin,
426		H. G. Supplee, Bloomsburg,
198	†Soluble Bone Phosphate,	M. Gilles, Pennsdale,
145		John W. Stuart, State College,
241		Wm. Woodmaker, Wing Gap,
266		L. Campbell, Sunbury,

For explanation of these tables see p. 27. †Composite sample.

FERTILIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Computed commercial value at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.				
				Found.	Guaranteed.	Found.	Guaranteed.			
10.60	12.01	3.59	.69	**16.29**	16.00	**15.60**	14.00	14.25	15.00	422
11.98	10.44	3.83	2.16	**16.43**	15.00	**14.27**	14.00	13.82	13.00	31
									13.00	82
									12.00	118
9.80	7.17	5.18	2.68	**15.03**	13.00	**12.35**	12.00	12.44	12.00	32
									14.00	192
									12.50	408
7.33	8 29	7.39	1.08	**16.76**	15.00	**15.68**	14.00	14.00	14.00	431
15.55	12.15	2,55	.46	**15.16**	.....	**14.70**	14.00	13.65	14.00	416
14.41	8.45	6.39	2.06	**16.90**	15.00	**14.84**	14.00	13.87	16.00	170
12.15	12.45	3.06	.58	**16.09**	15.00	**15.51**	14.00	14.22	13.50	109
8.25	8.34	6.01	1.20	**15.55**	15.00	**14.35**	14.00	13.24	17.00	356
									16.00	595
5.15	9.23	4.25	.77	**14.25**	.....	**13.48**	.....	12.69	11.00	64
8.56	10.32	5.35	.94	**16.61**	15.00	**15.67**	14.00	14.18	14.10	311
									15.00	426
									16.00	198
9.91	10.50	4.89	1.00	**16.39**	15.00	**15.39**	14.00	14.06	14.50	145
									13.50	241
									13.00	266

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	OHIO FARMER'S FERTILIZER CO., COLUMBUS, OHIO.	
172	Superior Phosphate,	Eugene Burnett, Utica,
	PACKERS' UNION FERTILIZER CO., NEW YORK, N. Y.	
369	†Banner Wheat Grower,	Levi H. Miller, Reeders,
368		Peter Warner, Tannersville,
406		R. C. Hefley, Berlin,
	R. H. POLLOCK, BALTIMORE, MD.	
634	Dissolved S. C. Bone,	J. A. C. Rider, Tyrone,
	READ FERTILIZER CO., NEW YORK, NEW YORK.	
160	Acid Phosphate,	Fields Bros., Wellsboro,
366	†Dissolved Bone Fertilizer,	Jerome S. Williams, Stroudsburg,
609		S. W. Smith, Centre Hall,
	JOHN S. REESE & CO., BALTIMORE, MD.	
35	†Elm Phosphate,	N. H. Spangler, Rossville,
538		Uriah Blackburn, Jenners,
	ISAAC ROBINSON, BALTIMORE, MD.	
127	H. G. Soluble Phosphate,	A. G. Galbraith, Woodbine,
	SCHAAL-SHELDON FERTILIZER CO., ERIE, PA.	
612	Dissolved Bone,	W. Sherline, Willmore,
	SCIENTIFIC FERTILIZER CO., PITTSBURGH, PA.	
162	Scientific Dissolved Bone,	James Shaffer, Cyrus,
	SHARPLESS & CARPENTER, PHILADELPHIA.	
21	†Acid Phosphate,	Matthew Elliott & Co., Media,
83		Ulsh & Brandt, Millerstown,
	M. L. SHOEMAKER & CO., PHILADELPHIA, PA.	
677	Dissolved S. C. Rock,	N. W. Stroup, Elizabethville,
	E. A. SLAGLE, PAXINOS, PA.	
413	H. G. Acid Phosphate,	E. A. Slagle, Paxinos,

For explanation of these tables see p. 27. †Composite sample.

FERTILIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Computed commercial value at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.				
				Found.	Guaranteed.	Found.	Guaranteed.			
14.72	7.32	5.01	1.60	**13.93**	14.00	***12.33**	13.00	12.07	16.00	172
10.38	4.02	6.58	1.53	**12.13**	11.00	**10.60**	10.00	10.60	15.00	369
									17.00	368
									16.00	406
11.50	11.70	3.31	.79	**15.80**	15.00	**15.01**	14.00	13.89	14.00	634
9.95	13.19	2.72	.39	**16.30**	14.50	**15.91**	14.00	14.47	18.00	160
9.25	8.86	6.42	1.37	**16.65**	.....	**15.28**	.....	13.94	15.00	366
									13.25	609
11.46	11.96	5.30	1.12	**16.38**	15.00	**15.26**	14.00	14.20	15.00	35
									16.00	538
8.65	11.01	4.33	1.17	**16.51**	.....	**15.34**	14.00	14.16	13.00	127
7.62	1.36	8.55	2.54	**12.45**	11.00	***9.91**	10.00	10.23	15.00	612
12.07	4.65	7.34	1.13	**13.12**	.....	**11.99**	.....	11.36	15.00	162
10.41	9.08	5.43	1.25	**15.76**	15.00	**14.51**	14.00	13.45	14.00	21
									14.00	83
2.42	7.72	5.98	5.84	**19.54**	.....	**13.70**	.....	14.46	10.00	677
11.27	11.60	3.64	.62	**15.86**	.....	**15.24**	14.00	13.96	13.00	413

*Constituent falls below guarantee.

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	SOUTHERN FERTILIZER CO., YORK, PA.	
296	Dissolved Bone Phosphate,	Wagner & Earnst, York,
	STANDARD FERTILIZER CO., NEW YORK, N. Y.	
415	Standard Dissolved Bone Phosphate,	Edward Beyer, Danville,
	SUSQUEHANNA FERTILIZER CO., BALTIMORE, MD.	
564	Soluble Bone Phosphate,	B. A. Cramer, Monroeton,
	SWIFT & CO., CHICAGO, ILL.	
504	Diamond Phosphate,	C. H. Schmucker, Friedens,
	JAMES THOMAS, WILLIAMSPORT, PA.	
430	Pure Dissolved S. C. Bone,	J. B. Smith, Washingtonville,
317	†Pure Disolved S. C. Bone Phosphate,	Barker Bros., Ebensburg,
74		L. M. Watts, Belleville,
618		E. J. Hughes, Lilly,
	TYGERT-ALLEN FERTILIZER CO., PHILADELPHIA, PA.	
570	Dissolved Bone Phosphate,	J. Y. L. Ward, South Towanda,
12	Sam'l H. Howitz's Acid Phosphate,	Marshall Matlock, Cheyney,
	R. A. WOOLDRIDGE FERTILIZER CO., BALTIMORE, MD.	
6	Florida Acid Phosphate,	Franklin G. Evans, Kelton,
	ZELL GUANO CO., BALTIMORE, MD.	
33	†Dissolved Bone Phosphate,	Oliver F. Arnold, Clear Spring,
548		Peter Seip, Somerset,
547	Dissolved South Carolina,	Peter Seip, Somerset,

For explanation of these tables see p. 27. †Composite sample.

FERTILIZERS—Continued.

Moisture in 100 pounds.	Phosphoric Acid in 100 Pounds.							Computed commercial value at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Soluble in water.	Reverted.	Insoluble.	Total.		Available.				
				Found.	Guaranteed.	Found.	Guaranteed.			
11.28	11.01	3.76	.74	**15.51**	15.00	**14.77**	14.00	13.65	14.00	296
9.39	11.13	4.14	1.39	**16.66**	15.00	**15.27**	14.00	14.19	.....	415
6.25	11.76	3.90	1.01	**16.67**	15.00	**15.66**	14.00	14.36	15.00	564
6.25	2.56	8.30	1.81	**12.67**	11.00	**10.86**	10.00	10.66	13.00	504
11.40	12.71	3.39	.32	**16.42**	16.00	**16.10**	14.00	14.49	.....	430
11.43	11.46	3.58	1.00	**16.04**	16.00	**15.04**	14.00	13.96	16.00	317
									15.00	74
									16.00	618
16.30	11.01	5.50	.56	**17.07**	15.00	**16.51**	14.00	14.65	26.00	570
11.34	10.14	4.10	.80	**15.04**	15.00	**14.24**	14.00	13.26	14.00	12
11.22	11.28	3.20	1.39	**15.87**	.....	**14.48**	14.00	13.72	12.00	6
8.95	13.05	2.76	1.51	**17.32**	16.00	**15.81**	14.00	14.79	15.00	33
									14.00	548
9.95	13.88	3.06	.57	**17.51**	.....	**16.94**	.....	15.25	14.00	547

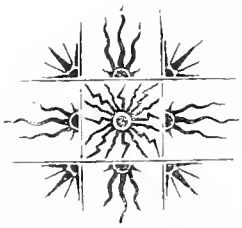
*Constituent falls below guarantee.

MISCELLANEOUS

Sample number.	Manufacturer and Brand.	From Whom Sample Was Taken.
	JAMES BONDAY, JR., & CO., BALTIMORE, MD.	
88	Old Reliable Brand—Genuine Kainit, ...	H. L. Tressler, Newport, ...
	HUBBARD & CO., BALTIMORE, MD.	
418	Kainit, ...	Boettinger & Dietz, Danville, ...
	SHARPLESS & CARPENTER, PHILADELPHIA.	
85	Kainit, ...	Ulsh & Brandt, Millerstown, ...

For explanation of these tables see p. 27. †Composite sample.

FERTILIZERS.

Moisture in 100 pounds.	Potash in 100 Pounds. (Water Soluble.)				Computed commercial value of 2,000 pounds at Department rating. (See p. 25.)	Selling price of 2,000 pounds at the point of selection.	Sample number.
	Present as muriate.	Present as sulphate.	Total.				
			Found.	Guaranteed.			
4.43	12.20	.....	**12.20**	.....	14.44	15.60	88
.50	13.58	.....	**13.58**	12.00	15.87	15.00	418
12.75	13.91	.....	**13.91**	12.42	16.18	14.00	85

*Constituent falls below guarantee.